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RESCINDED Per DA Circular 310-62, Jan 68

Reference

408.3

AI

FM

3-85

FM 3-85

Reference

DEPARTMENT OF THE ARMY FIELD MANUAL

C1

CHEMICAL SERVICE UNITS

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HEADQUARTERS, DEPARTMENT OF THE ARMY
APRIL 1960

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CHEMICAL SERVICE UNITS

FM 3-85

CHANGE No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 1 April 1966

FM 3-85, 14 April 1960, is changed as follows:

Throughout manual—

Change AR 220-70 to AR 600-20.

Change DA Pam 310-7 to DA Pam 310-3.

Change SR 605-105-5 to AR 611-101.

Change TA 3-104 to TA 10-100.

Delete all references to FM 101-1.

Delete all references to TM 3-255.

Change CBR warfare to CBR operations.

Change nerve gases to nerve agents.

Change maintenance echelons to maintenance categories.

Delete ARMY OR COMMUNICATIONS ZONE from title of chapter 11.

Paragraph 157, change TM 3-200 to TM 3-220.

Paragraph 158, last line change and 3-407 to TM 3-4230-200-12 and TM 3-4230-203-12.

2. Scope

* * * * *

b. (Superseded) The material in this manual is applicable to nuclear and nonnuclear warfare.

2.1. Recommended Changes

(Added)

Users of this manual are encouraged to submit recommended changes or comments to improve the manual. Comments should be keyed to the specific page, paragraph, and line of the manual in which the change is recommended. Reasons should be provided for each comment to ensure understanding and complete evaluation. Comments should be forwarded direct to the Commanding Officer, U.S. Army Combat Developments Command CBR Agency, Fort McClellan, Ala. 36201.

3. List of Chemical Service Units

(Superseded)

Chemical service units are listed below, together with their TOE titles and numbers, but without the specific letter suffixes to the numbers. For a listing of the latest TOE's with current letter suffixes, see DA Pam 310-3.

<i>TOE No.</i>	<i>TOE title</i>
3-32.....	Headquarters and Headquarters Detachment, Chemical Group
3-36.....	Headquarters and Headquarters Detachment, Chemical Battalion, Service
3-47.....	Chemical Maintenance Company
3-77.....	Chemical Processing Company
3-97.....	Chemical Laboratory (to be redesignated General Chemical Laboratory)
3-117.....	Chemical Depot Company, Communications Zone
3-217.....	Chemical Decontamination Company
3-500.....	Chemical Service Organization

4. Types of Organization

The types of * * * by TOE's are:

* * * * *

d. B Units. (Superseded) The TOE of some of the chemical service units provided for type B organization. Type B units are commanded and supervised by United States military personnel, but largely manned by auxiliary labor consisting of non-United States personnel (FM 54-1). Interpreters and translators are provided from teams available to the theater army commander.

6. General

* * * * *

b. Basic Responsibilities of Commanders and Leaders. (Superseded) The commander or leader of a unit has two basic responsibilities—the accomplishment of his mission; and the welfare of his men. The responsibilities of commanders and the principles of leadership are discussed in detail in FM 22-100 and DA Pam 600-2.

8. Company Commander

* * * * *

c. (Superseded) The command responsibilities of the company commander are listed in AR 600-20.

17. Heads of Sections

Rescinded

19. Training

a. Plans. As early as * * * include the following:

* * * * *

(2) (Superseded) Obtain copies of the table of organization and equipment applicable to his unit, as listed in DA Pam 310-3.

(3) (Superseded) Obtain copies of Army Training Program (ATP) 3-7 and Army Training Test (ATT) 3-1.

* * * * *

e. Supervision of Training. (Superseded) The training supervision responsibilities of the unit commander are discussed in FM 21-5.

* * * * *

21. Troop Safety

(Superseded)

For information about the protective measures and precautions that troop units must take when traversing contaminated terrain and when occupying areas exposed to chemical agents dispersed by friendly troops, see FM 21-40.

27. Unit Supply

* * * * *

c. Technical Service Items of Supply. **Rescinded**

* * * * *

28. Organizational Maintenance

a. General.

* * * * *

(4) (Superseded) Operations forms and preventive maintenance worksheets to be used in conjunction with organizational maintenance of equipment are listed in TM 38-750.

* * * * *

b. Echelons. **Rescinded**

c. Responsibility.

* * * * *

(2) *Individual.* (Superseded) Each individual in the Army is responsible for the proper care and proper use of equipment issued or entrusted to him.

* * * * *

29. Maintenance Inspections

(Superseded)

Maintenance inspections are the means whereby commanders ascertain the serviceability of equipment and the efficiency of maintenance. The inspecting system is outlined in general terms in AR 750-5 and, more specifically (as applied to the equipment of each technical service), in supporting regulations of the same-numbered series. AR 750-8 requires that a major annual command maintenance inspection of each unit be conducted.

31. Tools and Repair Parts

(Superseded)

a. Authorized quantities of maintenance tools and repair parts are supplied a using unit in the initial issue of equipment.

- b. Allowances for repair parts are carried by the unit as a prescribed load.
- c. The supply of repair parts to using units is normally through maintenance channels.
- d. Repair parts required for organizational maintenance are issued to using units by direct support maintenance units.

33. Maintenance Record Forms
(Superseded)

Maintenance record forms pertaining to the operation and maintenance of equipment and procedures for the use, preparation, and disposition of the forms are prescribed in TM 38-750.

34. Movement

- | | | | | | | |
|--|---|---|---|---|---|---|
| * | * | * | * | * | * | * |
| b. <i>Motor Movement.</i> (Superseded) Information about motor movement, including march graphs, movement SOP, and traffic control measures, is given in FM 55-15. See FM 3-8 for information about requirements for nonorganic motor vehicles to move a chemical service unit at one time. Radiological monitoring personnel located in lead vehicles should conduct continuous monitoring during a unit's motor movement over a contaminated area. | | | | | | |

- | | | | | | | |
|---------------------------|---|---|---|---|---|---|
| * | * | * | * | * | * | * |
| e. <i>Water Movement.</i> | | | | | | |
| * | * | * | * | * | * | * |

(2) *Tactical.* **Rescinded**

- | | | | | | | |
|---|---|---|---|---|---|---|
| * | * | * | * | * | * | * |
| g. <i>Preparation of Equipment for Shipment.</i> (Superseded) For information about the preparation of equipment for shipment, see the technical manual pertaining to the specific item of equipment. Information about loading motor vehicles for shipment by rail is given in FM 55-15. | | | | | | |

40. Mission
(Superseded)

The mission of the chemical depot company, communications zone (TOE 3-117), is to provide administrative and technical personnel for those depot operations pertinent to the receipt, classification, surveillance, storage, and issue of Chemical Corps supplies, ammunition, and equipment in the communications zone.

41. Assignment
(Superseded)

The chemical depot company, communications zone, is assigned to a theater army logistical command on the basis of one company per

200,000 troops, or major fraction thereof, in the theater of operations. The company is attached as required.

42. Location

a. (Superseded) The unit normally is located in the base section of the communications zone. An area suitable for chemical depot operations is assigned by the directorate staff of the logistical command. The depot site is selected, after reconnaissance, by the depot company commander. Factors for consideration in the selection of a depot site are discussed in paragraph 56.

* * * * *

Figure 1. Rescinded.

43. Capabilities

* * * * *

c. (Superseded) The unit will be attached to or dependent upon other units for medical and religious support, labor sources, and transportation for depot stock and for materials handling equipment.

* * * * *

e. (Superseded) The mobility of the unit is fixed.

47. Storage Branch

* * * * *

b. *Functions.* Functions of the * * * are given below:

* * * * *

(2) *Ammunition section.* (Superseded) Functions of this section include the storing and handling of chemical ammunition and munitions.

(3) *Toxic gas section.* (Superseded) Functions of this section include the storing and handling of 1-ton containers, 55-gallon drums, and other bulk containers of toxic agents; and the transferring of liquid agent from one bulk container to another.

* * * * *

52. Materials Handling Equipment

(Superseded)

Materials handling equipment authorized the company includes cranes, warehouse tractors, fork-lift trucks, and specially designed devices for hoisting and handling large (one-ton) containers of toxic agents and for transferring liquid agent from one large container to another. Detailed information about materials handling equipment is given in TM's 3-250, 3-500, 10-1619, and 743-200.

70. Field Filling Procedures

Rescinded

CHAPTER 3

CHEMICAL DEPOT COMPANY (FIELD ARMY)

Rescinded

92. Mission

(Superseded)

The mission of the chemical maintenance company is to provide general support and general support maintenance of chemical equipment in supported units and to furnish repair parts as required.

93. Assignment

(Superseded)

The chemical maintenance company is assigned to a theater army logistical command on the basis of one company per 60,000 troops not otherwise provided general chemical maintenance support. The company may be attached to headquarters and headquarters detachment, chemical battalion, service.

94. Capabilities

(Superseded)

a. The chemical maintenance company is capable of performing general support maintenance on chemical equipment utilized by 60,000 troops in the communications zone, and is capable of providing chemical repair parts in support of maintenance activities of the company and supported units.

b. The capabilities of a type B organization are the same as those of a full strength organization.

c. The company is dependent on other units for medical and religious support and for displacement transportation.

d. Individuals can engage in effective, coordinated defense of the unit's area or installation.

e. The unit has a mobility of 60 percent.

95. Coordination with Other Units

(Superseded)

Coordination of company activities with those of other units is a function of command. The maintenance company commander coordinates the unit's activities as directed by the chemical service battalion or other higher headquarters. Liaison is a responsibility of the supporting unit.

96. Organization

(Superseded)

The chemical maintenance company (fig. 4) is composed of a company headquarters, a machine shop section, and two maintenance platoons.

97. Functions

(Superseded)

The company performs maintenance of direct and general support categories to include inspection, test, repair, overhaul, and replacement of component parts, assemblies, and subassemblies. The maintenance is performed in accordance with instructions contained in the technical manuals for the specific items of equipment.

99. Gas Mask Repair Platoon

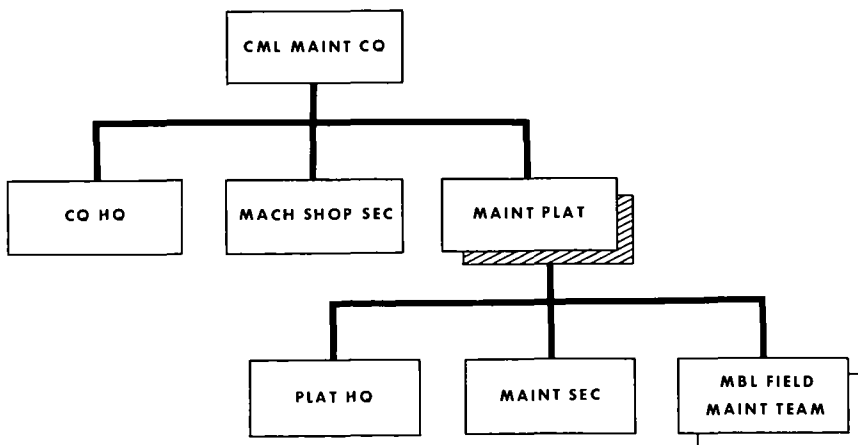
Rescinded

99.1. Maintenance Platoons

(Added)

Each of the two maintenance platoons (fig. 4) is composed of a platoon headquarters, a maintenance section, and two mobile field maintenance teams.

a. Platoon Headquarters. The platoon headquarters consists of a platoon leader and a platoon sergeant. Their duties pertain to the supervision and coordination of platoon activities.



Not included in reduced strength organization

Figure 4. (Superseded) Organization of chemical maintenance company.

b. Maintenance Section. Personnel of the maintenance section include a foreman, chemical equipment repairmen, a chemical supply-parts specialist, and a shop clerk. Functions of the section include the performing of direct and general support categories of maintenance of chemical equipment, the issue of chemical repair parts, and the keeping of maintenance work records.

c. Mobile Field Maintenance Teams. Each of the mobile field maintenance teams consists of a team chief, a senior chemical equipment repairman, and a chemical equipment repairman. Functions of each team include on-the-site maintenance of chemical equipment of supported units.

100. Equipment Repair Platoon

Rescinded

100.1. Machine Shop Section

(Added)

The machine shop section (fig. 4) consists of machinists and welders whose duties are to perform machine shop and welding operations in support of the maintenance platoons.

102. Major Items of Equipment

(Superseded)

a. The M14 CBR equipment maintenance kit includes special tools and test equipment for use in the maintenance of items including protective masks, decontaminating apparatuses, riot control agent dispersers, and portable and mechanized flamethrowers and related compressors. The company is authorized five kits, one for company headquarters and one for each of the four mobile field maintenance teams. The kits replace the Chemical Corps equipment and maintenance repair set previously authorized the company.

b. Other maintenance equipment includes mask eyepiece leakage indicators, mask outlet valve leakage indicators, mask faceblank vulcanizers, a truck-mounted repair shop, a repair parts shop mounted in a semitrailer van, sewing machines, air compressors, electric generators, and toolkits.

105. Location

(Superseded)

The chemical service battalion commander, in coordination with the director of services of the logistical command, assigns a general location for the chemical maintenance company. Local reconnaissance by the company commander is of primary importance in the selection of the exact site suitable for chemical maintenance operations.

106. Factors in Selection of Company Site

The company commander * * * those discussed below.

a. *Convenience.* (Superseded) In order to minimize transportation needs and facilitate efficient operation, the company site must be carefully selected. Service must be provided with the least inconvenience to the troops being served. This service involves consideration of the disposition of the troops being supported, the road net available to supported troops, and the distance from the supported troops. Small displacements of the supported troops should not necessitate displacement of a shop.

* * * * *

d. *Existing Buildings.* (Superseded) Although the company is equipped with tentage, existing buildings should be used when possible. In instances where shop facilities and space are available in towns or villages, such facilities should be utilized to the greatest extent practicable. Use of them should be made after consideration of such factors as traffic congestion, parking space, cover for vehicles, proximity to areas likely to be bombed, and the rapidity with which the situation is changing. In rear areas existing buildings may be utilized to a much greater degree.

* * * * *

109. Chemical Maintenance Responsibilities

(Superseded)

The chemical maintenance company is responsible for providing general support maintenance of chemical equipment utilized by supported troops and for providing chemical repair parts in support of the maintenance activities of supported units.

110. Principles of Chemical Maintenance

(Superseded)

The principles of chemical maintenance are substantially the same as for other technical service maintenance and are set forth in FM 38-5.

111. Recovery

Rescinded

114. Chemical Maintenance Shop Procedures

(Superseded)

a. Close liaison is maintained by maintenance shops with supported units. Unserviceable materiel is transported to maintenance shops by supported units or is repaired on the site by mobile field maintenance teams.

b. Maintenance shops turn in scrap materials to salvage dumps.

c. Under conditions of CBR operations, unserviceable materiel is tested for possible contamination. Contaminated equipment is decontaminated prior to maintenance operations. When necessary, the assistance of a

chemical decontamination unit is requested. Field decontamination procedures are covered in TM 3-220.

115. Procedures for Processing Materiel
(Superseded)

For information about the processing of materiel at maintenance shops, see FM 38-5.

119. Maintenance Shop Supply
(Superseded)

Maintenance shop supply includes the requisitioning, receipt, storage, and issue of repair parts and other operating supplies. The scope of maintenance shop supply depends on the volume and variety of work in each maintenance echelon. Resupply of repair parts is made through the normal supply and maintenance systems. The initial load of repair parts for each unit is prescribed by higher authority. Stock levels to be maintained are also prescribed by higher authority but are adjusted by the usage experience of each shop. The company commander will continually analyze usage data so that repair parts requirements will be based on actual needs. Effective shop supply is largely dependent on early determination of needs and the preparation of accurate and timely requisitions. Maintenance float stocks will be established in accordance with SB 3-34.

120. Maintenance Shop Files
(Superseded)

For information about maintenance shop files, including the preparation of reports and records, see FM 38-5.

121. Contact Repair Procedures
(Superseded)

Contact repair is on-the-site repair of equipment utilized by supported troops. This maintenance service is provided by the mobile field maintenance teams.

122. Disposition of Materiel

At any given * * * captured enemy materiel.

* * * * *

b. *Excess.* (Superseded) Excess items are reported and disposed of in accordance with supply procedures.

* * * * *

123. Protective Mask Maintenance Operations
(Superseded)

A suggested layout of mask production line maintenance operations is illustrated in figure 5. The layout includes three maintenance shop

stations: disassembly, cleaning, and initial inspection station; machine repair, testing, and in-progress inspection station; and assembly and final inspection station. As production line "bottlenecks" may develop in spite of careful planning, transfer of personnel from one station to another may be necessary.

a. Inspection, Disassembly, and Cleaning. After unserviceable protective masks are received at the maintenance shop they are decontaminated, if necessary, and sorted into types. The masks are then inspected, disassembled, and cleaned. The initial inspection should be positive, specific, and thorough since the completeness of repairs will be determined by its findings. The initial inspection determines not only the condition of the masks but also the maintenance or disposition required. It also serves as a basis for predetermining and requisitioning necessary parts and for scheduling and preplanning work. Upon completion of testing, serviceable mask components and accessories are forwarded for use in the final assembly process, unserviceable but repairable or rebuildable items are turned over to repairmen, and nonrepairable items are disassembled for reclaimable parts. In a shop inspection, masks are first disassembled into components. Mask accessories are removed. During disassembly, masks are cleaned in accordance with procedures prescribed in TM 3-522-15, TM 3-4240-202-15, TM 3-4240-221-15, TM 3-4240-223-15, and TM 3-4240-219-15.

b. Repair and Final Assembly Inspection. Mask components are repaired, tested, and assembled; and the final assembly, including accessories, is inspected in accordance with the procedures described in TM 3-522-15, TM 3-4240-202-15, TM 3-4240-221-15, TM 3-4240-223-15, and TM 3-4240-219-15.

124. Reclamation of Masks

(Superseded)

Salvage masks that are nonrepairable, but reclaimable, are disposed of in accordance with supply procedures.

125. Maintenance of Chemical Corps Equipment Other Than Masks

(Superseded)

a. Scope. In addition to protective masks, chemical items of equipment on which maintenance is performed include portable and mechanized flamethrowers, mechanical smoke generators, hand-operated and power-driven decontaminating apparatuses, filter units (collective protectors), air compressors, and riot control agent dispersers. Equipment repair personnel must be qualified in the operation of the equipment for which they have maintenance responsibility in order to properly examine it and conduct the performance tests required in shop inspections.

b. Layout of Equipment Maintenance Area. An equipment maintenance area should provide a central location for the storage and issue of

repair parts and common tools. Welding, painting, and carpentry shops are established in this general area. Heavy equipment is usually worked on in place rather than processed through a series of maintenance stations.

c. Equipment Maintenance Procedures. Equipment repair and other related maintenance operations represent hard, tedious work requiring thorough training and skill. The platoon sergeant must select crews with care to ensure that they will be able to work together. The company commander should provide standing operating procedures covering all routine operations. Unforeseen needs, inadequate equipment for certain types of work, and shortages of supplies require that chemical maintenance officers and technicians exercise great ingenuity in improvisation and field expedients to solve the problems at hand. An important factor in field operations involving the maintenance of equipment is replacement of new for worn or damaged assemblies whenever this will conserve time. The replaced item is repaired when time permits. It is neither practicable nor desirable to determine in advance the solutions to all possible problems of equipment maintenance. Intelligent and satisfactory solutions are dependent upon the training, efficiency, initiative, and commonsense of maintenance personnel, and their ability to adapt themselves to constantly changing situations. Technical instructions for performing direct and general support categories of maintenance of chemical items of equipment are published in applicable technical manuals for the specific items. See DA Pam 310-4 for a listing of the technical manuals.

126. Communications

(Superseded)

a. A switchboard and telephone are provided for company headquarters, and telephones are provided for the machine shop, maintenance platoon headquarters, and maintenance sections for internal communication and for communication with higher headquarters.

b. A radio set AN/GRC-5 and a radio set AN/VRC-46 are provided company headquarters for communication with higher headquarters and for receiving warning net information. Both radios are mounted in a $\frac{1}{4}$ -ton truck.

127. Transportation

(Superseded)

The chemical maintenance company is limited to the minimum number of motor vehicles required for company administration, liaison, reconnaissance, supply, and maintenance operations. Each mobile maintenance team is provided a $\frac{3}{4}$ -ton truck with trailer for use in on-the-site maintenance operations. For information as to additional vehicles for movement of the company at one time, see FM 3-8.

129. Mission

* * * * *

b. *Secondary Mission.* (Superseded) The secondary mission of the company is to provide emergency firefighting and emergency mobile shower service.

130. Assignment

(Superseded)

The chemical decontamination company is assigned to a theater army logistical command. The company may be attached to the headquarters and headquarters detachment, chemical service battalion.

132. Capabilities

a. (Superseded) The company is capable of providing CBR decontaminating service in support of approximately 25,000 troops.

* * * * *

d. (Superseded) Individuals of the company can engage in effective, coordinated defense of the company's area or installation.

* * * * *

140. Decontaminating Equipment

(Superseded)

a. The major mission item of equipment is the 400-gallon, power-driven, truck-mounted decontaminating apparatus. Mounted on a 2½-ton, 6x6 truck chassis, the apparatus is designed primarily for spraying decontaminants. It is equipped with shower rails for use in providing mobile shower service for troops. Information about the loading, operation, and organizational maintenance of 400-gallon decontaminating apparatuses is given in TM 3-233, TM 3-4230-200-12, and TM 3-4230-203-12.

b. Auxiliary equipment includes 3,000-gallon coated fabric water tanks, gasoline-engine driven centrifugal pumps for pumping water from the water source into the tanks, and water heaters to provide hot water for primary use in decontamination operations.

c. Hand-operated equipment for use in decontamination work includes portable decontaminating apparatuses, buckets, shovels, rakes, and brooms. Information about the use of the equipment is given in TM 3-220.

d. Two types of power-driven sprayers, on skid-mounted and the other pushcart-mounted, are authorized the company for use in the biological decontamination of the interior of buildings and other inclosed spaces. Although designed for spraying insecticides, the sprayers are used in decontamination operations to disseminate BPL biological decontaminating agent in vapor form. Information about the use of the sprayers to disseminate BPL is given in TM 3-220. Information about the operation

and organizational maintenance of the sprayers is given in TM 5-3740-200-15 and TM 5-3740-201-15.

143. Communications Equipment
(Superseded)

- a. The company is equipped with four telephones, including one for the company commander and one for each of the three platoon leaders. The company commander's telephone is tied in with the line from higher headquarters and with the lines to the platoon headquarters.
- b. A radio set mounted in a 1/4-ton truck is provided the company commander for monitoring higher headquarters or supported units and for operating in the company net. A radio set is mounted in each of the three 1/4-ton trucks used by the platoon leaders.

151. Preliminary Work Before Occupying Site
(Superseded)

Advance party personnel prepare the site for operation before it is occupied by the company. Guards are detailed to protect the site from sabotage. The area and existing buildings are tested for contamination. Markers are placed to indicate the locations of company headquarters, motor pool, and other company installations. Movement schedules are prepared and guides are appointed from among members of the reconnaissance party to direct each part of the company convoy to its destination.

155. Decontamination Supplies

* * * * *

- b. *Supply.* (Superseded) Decontamination supplies are obtained from the nearest depot or supply point.

156. Water Supply

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- b. *Water Heating.* (Superseded) Water is heated by means of heaters provided the company for use with the power-driven decontaminating apparatuses.

159. Smoke Screening Operations
Rescinded

162. Assignment
(Superseded)

The chemical processing company normally is assigned to a section of the communications zone on the basis of one company per 125,000 troops to be supported. The company may be attached to the headquarters and headquarters detachment, chemical service battalion.

164. Capabilities

(Superseded)

a. At full strength, the chemical processing company is capable of processing approximately 360,000 pounds of clothing per month or 60,000 permeable, protective uniforms. The number of uniforms that can be processed monthly will vary, depending on whether the uniforms are lighter weight, hot-climate uniforms or heavier weight, cold-climate uniforms.

b. Each of the two platoons is capable of separate operations and can operate a clothing impregnating plant continuously on a two-shift basis.

c. The capabilities of a type B organization are the same as those of a full strength organization.

d. Individuals of the company can engage in effective, coordinated defense of the unit's area or installation.

e. The unit has a mobility of 10 percent.

165. Coordination with other Units

(Superseded)

a. Coordination is maintained by the chemical processing company with depot units that provide the company with clothing to be impregnated and that obtain the clothing after impregnation.

b. Coordination is also maintained with engineer units that may help erect buildings for impregnating plant operations and build and maintain roads to the plant site.

169. Platoon

a. *Organization.* (Superseded) The platoon of a full strength company is composed of a platoon headquarters and two sections (fig. 11). At reduced strength, the platoon has only one section.

* * * * *

183. Laundering Methods

(Superseded)

For information about the methods of laundering permeable protective clothing by clothing impregnating plants, see TM-1680A.

185. Procedure for Mothproofing Woolens

Rescinded

186. Laundering Process for Decontamination of Radioactively Contaminated Clothing

(Superseded)

For information about the procedures and formulas for this process, see FM 10-3.

187. Mission

(Superseded)

The chemical laboratory, to be redesignated the general chemical laboratory, has the following mission:

- a. To provide chemical analysis and testing for chemical, biological, and radiological (CBR) activities in the theater of operations.
- b. To provide laboratory development of temporary devices and measures for CBR activities.
- c. To analyze, within capabilities, chemicals and other items procured in the theater to assure that the contract specifications are satisfied.

188. Assignment

(Superseded)

The laboratory is assigned to theater army on the basis of one or more per theater as required. The laboratory is under the operational control of the theater army logistical command.

190. Capabilities

* * * * *

- b. (Superseded) The laboratory supplements the intelligence capabilities of intelligence units and may further exploit the findings of these units.

* * * * *

191. Coordination with other Units

(Superseded)

- a. Since the identification of biological agents is the responsibility of the Army Medical Service, the laboratory coordinates its biological materiel activities with medical laboratories and other appropriate Army Medical Service units.
- b. Coordination is maintained by the laboratory with—
 - (1) Intelligence units on projects related to enemy CBR materiel.
 - (2) Depots and supply, maintenance, and salvage units on projects related to the laboratory determination of the serviceability of chemical items.
 - (3) Explosive ordnance disposal units on projects related to the sampling and testing of the chemical agent filling of explosive-type chemical ammunition.

193. Functions

(Superseded)

- a. The laboratory provides services not only to theater Army forces but also to such theater Navy, theater Air Force, allied, and other forces as may be directed by the theater commander.

b. Some of the laboratory services are of special interest to military intelligence. For example, the laboratory processing of enemy materiel may furnish information of technical, tactical, and strategic intelligence value to all echelons of command.

c. Under conditions of CBR operations, the laboratory services are devoted primarily to projects related to CBR activities.

d. Under conditions of non-CBR operations, the services may be devoted secondarily to projects related to other than CBR activities.

e. Typical laboratory services are listed below:

- (1) Laboratory analysis and identification of enemy chemical and radiological agents.
- (2) Laboratory development of expedients for the emergency protection of troops and equipment against enemy new CBR agents.
- (3) Surveillance testing and analysis of materiel to determine serviceability.
- (4) Solving problems of a chemical nature that are submitted by higher headquarters and that are consistent with the equipment available.
- (5) Performing laboratory tests related to research and development work particularly applicable to the theater.
- (6) Providing technical advice and assistance to other units as required.
- (7) Examining and testing water and foods for toxic contamination.
- (8) Analysis and testing of filter elements of protective masks, filters of gas-particulate units, protective clothing, clothing impregnation materials, decontaminants, chemicals, defoliants, insecticides, dyes, paints, solvents, battery acids, motor coolants, concrete, and soil.

Table IV. Typical Chemical Laboratory Services
Rescinded

202. Intelligence Section

* * * * *

b. *Functions.* (Superseded) Functions include the evaluation, from an intelligence standpoint, of the data generated by laboratory analysis and testing of unidentified or enemy materiel. The work of the section complements the activities of chemical intelligence personnel of military intelligence units.

205. Radiological Equipment

(Superseded)

Specialized radiac equipment items for use by the radiological laboratory are components of the chemical base laboratory.

CHAPTER 8

CHEMICAL COMPANY, COMBAT SUPPORT

Rescinded

232. Types of Teams

Two general types * * * are listed below.

* * * * * *

b. Operational Teams. (Superseded)

- (1) Supply teams: BA and BB.
- (2) Maintenance teams: EA and EB.
- (3) Mobile laboratory team: HA.
- (4) Munitions safety control team: IA.
- (5) CBR element team: JA.

234. Supply Teams

(Superseded)

The mission of supply teams BA and BB is to supply chemical equipment and supplies. Team BA has the capability of receiving, classifying, storing, and issuing class II, IV, and V chemical supplies and equipment for 5,000 to 10,000 troops in the communications zone, and team BB has this capability for 25,000 to 50,000 troops in the communications zone. The teams are assigned to theater army logistical command as required.

235. Maintenance Teams

(Superseded)

The mission of maintenance teams EA and EB is to provide direct and general support maintenance of chemical equipment. Team EA has the capability of providing this maintenance for approximately 9,000 troops in the communications zone, and team EB has this capability for approximately 20,000 troops in the communications zone. The teams are assigned to theater army logistical command as required.

236. Decontamination Teams

Rescinded

237. Technical Intelligence Teams

Rescinded

238. Mobile Laboratory Team

(Superseded)

a. The mobile laboratory team HA is equipped with the M19 CBR agent sampling and analyzing kit. This kit gives the team the capability to sample and identify chemical agents as solids, liquids, aerosols, and vapors from water, air, and soil; to sample biological agents from water

and soil surfaces; and to sample radiological agents on surfaces or in the soil.

b. For processing and identification, the radiological agent samples are forwarded to a general chemical laboratory, and the biological agent samples are forwarded to a medical service laboratory.

c. Operation of the sampling and analyzing kit requires that the team leader have training as a professional chemist and that other team personnel be highly trained chemical laboratory specialists.

239. Chemical Munitions Safety Control Team

(Superseded)

a. The mission of the chemical munitions safety control team IA is to provide inspection, evacuation, escort, demilitarization, destruction, deactivation, and safety and security services for Chemical Corps munitions and related items.

b. Team IA is assigned to theater army logistical command as required.

240. Radiological Center Team IA

Rescinded

240.1. CBR Element Team

(Added)

The CBR element (CBRE) team JA has the capability of providing CBRE support for one 12-hour shift to include the following operations: analyzing targets for attack with chemical and biological agents; predicting both the casualty-producing effectiveness of and the degree of hazard from chemical and biological attacks; coordinating and, in specific instances, controlling radiological surveys; maintaining CBR situation maps; and disseminating information resulting from these operations. The team can augment the CBRE of tactical operations centers and of damage control centers to provide a 24-hour operating capability. CBRE teams are assigned as required. For information about CBRE functions, see FM 21-40 and FM 3-12.

242. Cellular Chemical Units

a. *General.* A cellular chemical unit (detachment, platoon, or company) is composed of teams provided by the chemical service organization (TOE 3-500), with or without mess, automotive maintenance, and **data processing** teams provided by the composite service organization (TOE 29-500). Each cellular unit * * * a specific function.

b. *Organization.*

* * * * *

(3) (Superseded) A chemical service platoon or company may be organized with an administrative and headquarters team and with either operational teams of only one chemical service function or of different functions.

- (4) (Superseded) Mess, automotive maintenance, and data processing teams are provided, as required, by the composite service organization (TOE 29-500). The total number of personnel to be messed, the total number of motor vehicles requiring organizational maintenance computed in terms of vehicle equivalents, and the number of stock record transaction lines per month are determining factors in the selection of appropriate size mess, automotive maintenance, and data processing teams. The characteristics of these teams are given in FM 3-8.

c. Typical Chemical Cellular Units. Rescinded

Figure 16. **Rescinded**

Figure 17. **Rescinded**

Figure 18. **Rescinded**

* * * * *

244. Assignment

(Superseded)

The headquarters and headquarters detachment, chemical group, is assigned to a field army or a theater army logistical command on the basis of one detachment per field army or communications zone. It may be attached to a type B or C logistical command headquarters.

245. Capabilities

* * * * *

d. (Superseded) Individuals of the unit can engage in effective, coordinated defense of the unit's area or installation.

e. (Superseded) The unit has a mobility of 70 percent.

246. Coordination with other Units

a. Chemical Corps Units. Rescinded

b. Command Echelons. (Superseded) When the chemical group is assigned to a field army, the group commander plans chemical combat support in coordination with the army assistant chief of staff, operations (G3). When the chemical group is assigned to a logistical command, the group commander plans chemical combat support in coordination with the director of operations, and he plans chemical combat service support with the director of services. Liaison officers from group headquarters aid in coordinating the activities of the group's units with the requirements of the supported forces.

* * * * *

247. Organization

(Superseded)

The unit (fig. 19) is composed of a group headquarters and a headquarters detachment, consisting of a detachment headquarters and three sections.

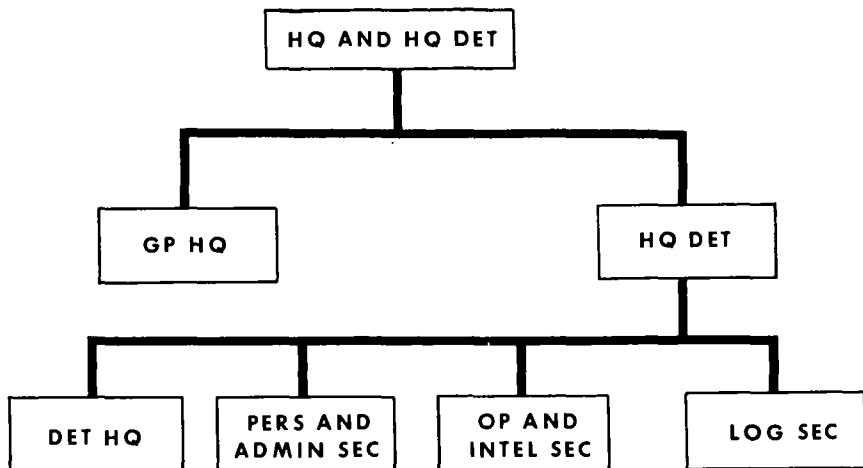


Figure 19. (Superseded) *Organization of headquarters and headquarters detachment, chemical group.*

248. Functions

(Superseded)

a. When the chemical group is assigned to a field army, the assigned or attached chemical battalions or other chemical units have combat support functions.

b. When the chemical group is assigned to a communications zone, the assigned or attached chemical battalions and other chemical units have either combat support functions, such as smoke operations, or combat service support functions.

250. Headquarters Detachment

(Superseded)

a. *Organization.* The headquarters detachment (fig. 19) is composed of a detachment headquarters and three sections—personnel and administrative; operations and intelligence; and logistics. The detachment is commanded by the chemical maintenance officer. The composition of the detachment headquarters and of the three sections is shown in TOE 3-32.

b. *Functions.* Functions of detachment headquarters and the three sections are given in (1) through (4) below:

- (1) *Detachment headquarters* handles the supply and administrative services of the unit; installs the group headquarters communications equipment; operates the group headquarters communications center; and assists in the operation of group headquarters, mess, and motor maintenance.
- (2) *Personnel and administrative section* maintains the personnel and administrative records of group headquarters and headquarters detachment, assists in coordinating and supervising unit

personnel sections of attached units, and assists in the food service and chaplains' activities of group headquarters.

- (3) *Operations and intelligence section* performs the administrative and technical duties necessary in the training, organization, operations, troop information and education, and intelligence activities of the headquarters.
- (4) *Logistics section* maintains supply records and supervises chemical supply and maintenance of attached units. In the communications zone, the section has the additional function of maintaining a centralized chemical stock control system.

252. Group Commander

* * * * *

e. Rescinded

254. Adjutant (S1)

The adjutant is the advisor to the commander on personnel administrative procedures. He supervises the headquarters personnel and administrative section and is responsible for staff supervision of those duties charged to the personnel officer. The staff duties of the S1, in general, are similar to those of a G1. (See FM 100-10 and FM 101-5). As adjutant, he may perform the following:

* * * * *

265. Communications Section Chief

Rescinded

267. Chemical Processing Officer

Rescinded

268. Stock Control Officer

(Superseded)

The stock control officer is responsible for maintaining the centralized chemical stock control system when the group is directed to operate the system for the communications zone to which it is attached. He determines supply requirements, initiates requisitions to maintain stock balances at required levels, determines local procurement needs, and controls stock levels in depots as prescribed by the theater commander. He supervises the keeping of records by the section and insures that stock record cards are current and accurate. The duties of the stock control officer are performed by the chemical supply officer. His principal assistant is the chief chemical supply supervisor.

269. Chemical Supply Specialist

Rescinded

271. Communications Equipment

(Superseded)

Communications equipment authorized the group headquarters and headquarters detachment includes five telephones, two telephone switchboards, one teletypewriter, three radios, and communications security equipment. The switchboards can be used separately to maintain communications in two locations when the unit displaces by echelons. The teletypewriter is used in the teletypewriter net between group headquarters and higher headquarters.

284. Communications

(Superseded)

a. A type wire system of a chemical group headquarters and headquarters detachment is shown in figure 20.

b. A type command radio net of a chemical group is shown in figure 20.1.

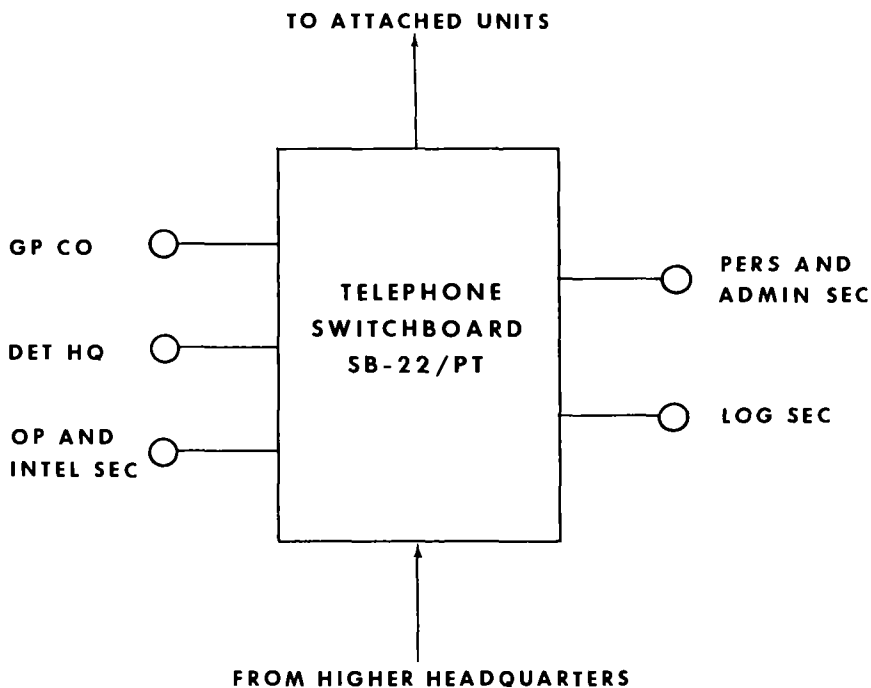


Figure 20. (Superseded) Type wire system of a chemical group headquarters and headquarters detachment.

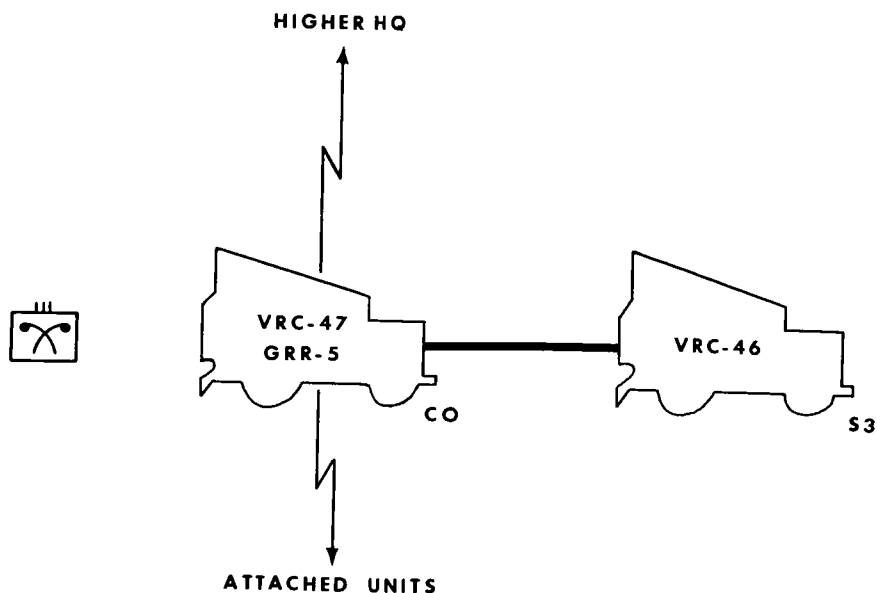


Figure 20.1. (Added) Type command radio net (FM-voice) of a chemical group.

286. Checklist for SOP of Chemical Group

The following checklist * * * a chemical group.

* * * * *

f. Logistics.

* * * * *

- (4) (Superseded) Service (decontamination and clothing impregnation) installations.

* * * * *

287. Mission

(Superseded)

The mission of the headquarters and headquarters detachment, chemical battalion, service (TOE 3-36), is to provide command, technical, and operational supervision for chemical service units.

288. Assignment

(Superseded)

The headquarters and headquarters detachment is assigned to theater army logistical command on the basis of one detachment per logistical command. It is normally attached to a type B or C logistical command.

289. Capabilities

* * * * *

- c. (Superseded) The unit is attached to or is dependent upon other

units for messing facilities, medical and religious support, and motor maintenance.

d. (Superseded) Individuals of this unit can engage in effective, coordinated defense of the unit's area or installation.

e. (Superseded) The unit has a mobility of 50 percent.

290. Coordination with other Units

a. (Superseded) It is the responsibility of the chemical service battalion commanders to coordinate the activities of the chemical units assigned or attached to the battalion and to maintain liaison with adjacent units.

b. (Superseded) The service battalion commander, in coordination with the logistical command director of services, plans chemical service support.

c. **Rescinded**

* * * * *

291. Organization

(Superseded)

The headquarters and headquarters detachment, chemical battalion, service (fig. 21), is composed of a battalion headquarters and a headquarters detachment.

292. Functions

Rescinded

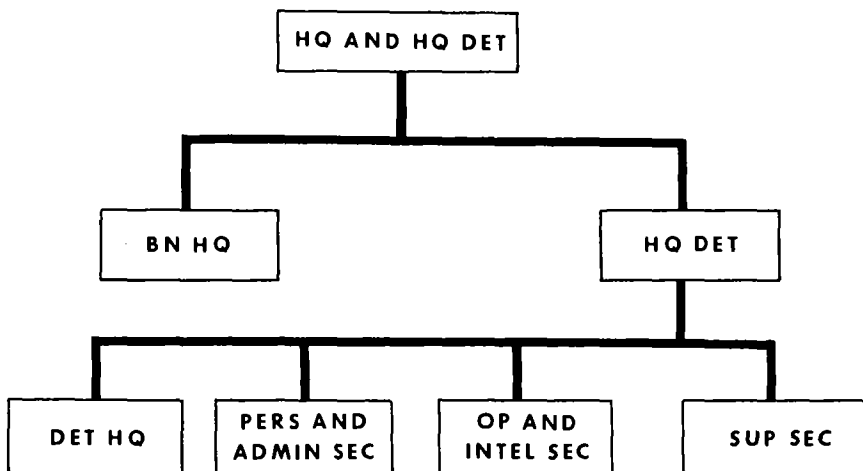


Figure 21. (Superseded) Organization of headquarters and headquarters detachment, chemical battalion, service.

294. Headquarters Detachment

(Superseded)

a. Organization. The headquarters detachment (fig. 21) is composed of a detachment headquarters and three sections—personnel and administrative; operations and intelligence; and supply. The composition of the detachment headquarters and of the three sections is shown in TOE 3-36. The detachment is commanded by the battalion adjutant.

b. Functions. Functions of detachment headquarters and of the three sections are given in (1) through (4) below:

- (1) Functions of the detachment headquarters include unit supply, installation of the unit's communications equipment, operation of the communications center, and mess augmentation of the unit on which the headquarters and headquarters detachment is dependent for messing facilities.
- (2) Functions of the personnel and administrative section include the maintenance of personnel and administrative records of the organization and attached units.
- (3) Functions of the operations and intelligence section include administrative and technical duties pertaining to training, operations, troop information and education, and intelligence matters of the organization and attached units.
- (4) Functions of the supply section include maintenance of unit supply records and the administrative control of supplies for attached units.

296. Personnel Officer

The personnel officer is charged with preparation, maintenance, and safekeeping of all records, documents, correspondence, and statistics of a personnel and administrative nature that are not required to be kept at the headquarters of a subordinate command. The duties of the personnel officer are performed by the unit personnel technician. He may perform the following duties:

* * * * *

297. Assistant Supply Officer (Assistant S4)

Rescinded

299. Communications Equipment

(Superseded)

The headquarters and headquarters detachment is authorized five telephones and one telephone switchboard. Two telephones are assigned to detachment headquarters and one each to the personnel and administrative section, operations and intelligence section, and supply section. The switchboard and one radio set, AN/GRR-5, for monitoring higher headquarters are assigned to the detachment headquarters.

301. Other Equipment (Superseded)

Necessary items are provided for organizational maintenance and other normal functions of the unit.

304. Location of Battalion Headquarters

a. *Army Service Area.* **Rescinded**

* * * * *

310. Communications (Superseded)

A type wire system of a chemical service battalion headquarters and headquarters detachment is shown in figure 22.

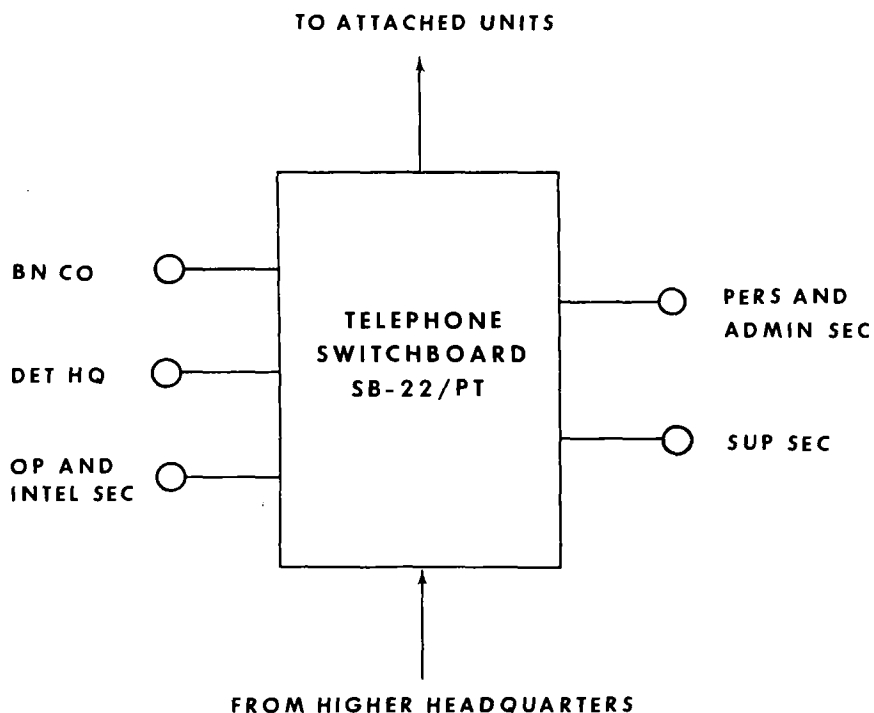


Figure 22. (Superseded) Type wire system of a chemical service battalion headquarters and headquarters detachment.

APPENDIX

REFERENCES

(Superseded)

AR 220-10	Preparation for Oversea Movement of Units (POM)
AR 220-58	Organization and Training for Chemical, Biological, and Radiological Operations
AR 320-5	Dictionary of United States Army Terms
AR 320-50	Authorized Abbreviations and Brevity Codes
AR 380-5	Safeguarding Defense Information
AR 385-10	Army Safety Program
AR 385-40	Accident Reporting and Records
AR 600-20	Army Command Policy and Procedure
AR 735-35	Supply Procedures for TOE and TDA Units or Activities
AR 750-5	Organization, Policies, and Responsibilities for Maintenance Operation
AR 750-8	Command Maintenance Management Inspections
DA Pam 108-1	Index of Army Motion Pictures, Filmstrips, Slides, Tapes, and Phono-Recordings
DA Pam 310-series	Military Publications (as applicable)
FM 3-8	Chemical Corps Reference Handbook
FM 3-12	Operational Aspects of Radiological Defense
FM 3-50	Chemical Smoke Generator Units and Smoke Operations
FM 9-6	Ammunition Service in the Theater of Operations
FM 21-5	Military Training Management
FM 21-6	Techniques of Military Instruction
FM 21-11	First Aid for Soldiers
FM 21-30	Military Symbols
FM 21-40	Small Unit Procedures in Chemical, Biological, and Radiological (CBR) Operations
FM 21-41	Soldier's Handbook for Chemical and Biological Operations and Nuclear Warfare
FM 21-48	Chemical, Biological, and Radiological (CBR), and Nuclear Defense Training Exercises
FM 22-100	Military Leadership
FM 38-5	Logistics, Maintenance Management
FM 54-1	The Logistical Command
FM 54-3	The Field Army Support Command
FM 55-6	Transportation Services in Theaters of Operations
FM 100-5	Field Service Regulations; Operations
FM 100-10	Field Service Regulations; Administration

FM 101-5	Staff Officers' Field Manual; Staff Organization and Procedure
FM 101-10	Staff Officers' Field Manual; Organization, Technical, and Logistical Data; Part 1—Unclassified Data
TM 3-215	Military Chemistry and Chemical Agents
TM 3-216	Military Biology and Biological Agents
TM 3-220	Chemical, Biological, and Radiological (CBR) Decontamination
TM 3-223	Decontaminating Apparatus, Power-Driven, Truck-Mounted, M3A3
TM 3-4230-200-12	Operator and Organizational Maintenance Manual—Decontaminating Apparatus, Power-Driven, Truck-Mounted, M3A2
TM 3-4230-203-12	Organizational Maintenance Manual—Decontaminating Apparatus, Power-Driven, Truck-Mounted, 400-Gallon, M9
TM 3-4230-204-15	Operator, Organizational, Field, and Depot Maintenance Manual—Decontaminating Apparatus, Portable, DS2, 1½-Quart, ABC-M11
TM 3-4240-202-15	Organizational, DS, GS, and Depot Maintenance Manual—Mask, Protective, Field, ABC-M17
TM 3-4520-200-12	Organizational Maintenance Manual—Heater, Water, Oil, M1
TM 5-311	Military Protective Construction (Nuclear Warfare and Chemical and Biological Operations)
TM 5-3740-200-15	Operator, Organizational, Field, and Depot Maintenance Manual—Sprayer, Insecticide, Skid-Mounted, Gasoline Driven, 40 GPH, Fog
TM 5-3740-201-15	Operator, Organizational, Field, and Depot Maintenance Manual—Sprayer, Insecticide, Pushcart-Mounted, Mist Type, Gasoline Driven, 30 GPH
TM 10-8415-204-13	Organizational and DS Maintenance Manual—Rocket Fuel Handlers' Clothing, Toxicological Agents Protective Clothing, Vesicant Gas Protective Clothing, and Explosive Handlers' Clothing
TM 38-750	Army Equipment Record Procedures
TM 57-210	Air Movement of Troops and Equipment

By Order of the Secretary of the Army:

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ARADCOM Rgn (2)	Units org under fol TOE's:
USACDCEC (10)	3-32 (8)
USACDCNG (1)	3-36 (4)
USACDCCAG (5)	3-47 (3)
USACDCIAS (1)	3-77 (3)
USACDCCSSG (5)	3-97 (3)
USACDCSWCAG (5)	3-117 (3)
USACDCCAG Agcy (5)	3-217 (3)

NG: State AG (3).

USAR: Units—same as active Army except allowance is one copy to each unit.
For explanation of abbreviations used, see AR 320-50.

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FIELD MANUAL }
No. 3-85 }

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., 14 April 1960

CHEMICAL SERVICE UNITS

		Paragraphs	Page
CHAPTER 1.	INTRODUCTION		
Section I.	General.....	1-5	3
	II. Duties and responsibilities of small-unit commanders, leaders, and key personnel.....	6-17	4
	III. Common functions of units.....	18-35	7
	IV. Auxiliary labor.....	36-39	20
CHAPTER 2.	CHEMICAL DEPOT COMPANY, COMMUNICATIONS ZONE		
Section I.	General.....	40-43	22
	II. Organization and functions.....	44-48	24
	III. Equipment.....	49-52	25
	IV. Training.....	53, 54	26
	V. Operations.....	55-72	27
CHAPTER 3.	CHEMICAL DEPOT COMPANY (FIELD ARMY)		
Section I.	General.....	73-77	38
	II. Organization and functions.....	78-81	39
	III. Equipment.....	82-85	40
	IV. Training.....	86	41
	V. Operations.....	87-91	41
CHAPTER 4.	CHEMICAL MAINTENANCE COMPANY		
Section I.	General.....	92-95	44
	II. Organization and functions.....	96-100	45
	III. Equipment.....	101, 102	49
	IV. Training.....	103, 104	50
	V. Operations.....	105-128	50
CHAPTER 5.	CHEMICAL DECONTAMINATION COMPANY		
Section I.	General.....	129-133	68
	II. Organization and functions.....	134-138	69
	III. Equipment and supplies.....	139-144	72
	IV. Training.....	145-147	73
	V. Operations.....	148-160	74
CHAPTER 6.	CHEMICAL PROCESSING COMPANY		
Section I.	General.....	161-165	82
	II. Organization and functions.....	166-171	83
	III. Equipment and supplies.....	172-175	84
	IV. Training.....	176, 177	85
	V. Operations.....	178-186	86

* This manual supersedes FM 3-25, 2 March 1954, including C 1, 10 May 1955 and C 2, 20 January 1956; FM 3-30, 29 April 1954, including C 1, 23 August 1956; FM 3-60, 7 September 1951, including C 1, 10 May 1955; FM 3-65, 28 December 1951, including C 1, 24 May 1955; FM 3-70, 25 June 1954, including C 1, 9 May 1955; FM 3-80, 28 July 1954; and TC 3-4, 5 August 1958.

		Paragraphs	Page
CHAPTER	7. CHEMICAL LABORATORY		
Section	I. General.....	187-191	89
	II. Organization and functions.....	192-202	90
	III. Equipment.....	203-205	94
	IV. Training.....	206-208	95
	V. Operations.....	209-214	96
CHAPTER	8. CHEMICAL COMPANY, COMBAT SUPPORT		
Section	I. General.....	215-219	98
	II. Organization.....	220, 221	101
	III. Equipment.....	222, 223	103
	IV. Training.....	224, 225	103
	V. Operations.....	226-230	104
CHAPTER	9. CHEMICAL SERVICE ORGANIZATION.....	231-242	113
	10. HEADQUARTERS AND HEADQUARTERS DETACHMENT, CHEMICAL GROUP		
Section	I. General.....	243-246	120
	II. Organization and functions.....	247-250	121
	III. Duties and responsibilities of group commander, staff, and key personnel.....	251-269	123
	IV. Equipment.....	270-273	131
	V. Training.....	274-277	132
	VI. Operations.....	278-286	133
CHAPTER	11. HEADQUARTERS AND HEADQUARTERS DETACHMENT, CHEMICAL BATTALION, SERVICE, ARMY OR COMMUNICATIONS ZONE		
Section	I. General.....	287-290	139
	II. Organization and functions.....	291-294	140
	III. Duties and responsibilities of battalion com- mander, staff, and key personnel.....	295-297	142
	IV. Equipment.....	298-301	144
	V. Training.....	302, 303	144
	VI. Operations.....	304-312	145
APPENDIX	REFERENCES.....		150
INDEX			155

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Purpose

This manual is a guide for unit commanders and other personnel concerned with the training and operations of chemical service (category II and III) units.

2. Scope

a. This manual consolidates general information, common functions, and guiding principles applicable to chemical service units. It outlines doctrine basic to field operations of individual units and gives detailed guidance concerning the mission, assignment, capabilities, and operation of individual chemical service units.

b. The material in this manual is applicable to chemical, biological, and radiological (CBR) warfare, and to both nuclear and nonnuclear warfare.

3. List of Chemical Service Units

Chemical service units are listed below, together with their TOE titles and numbers, but without the specific letter suffixes to the numbers. For a listing of the latest TOE's with current letter suffixes, see DA Pam 310-7.

<i>Toe No.</i>	<i>Toe Title</i>
3-7	Chemical company, combat support
3-32	Headquarters and headquarters detachment, chemical group.
3-36	Headquarters and headquarters detachment, chemical battalion, service, army or communications zone.
3-47	Chemical maintenance company
3-67	Chemical depot company
3-77	Chemical processing company
3-97	Chemical laboratory
3-117	Chemical depot company, communication zone
3-217	Chemical decontamination company
3-500	Chemical service organization

4. Types of Organization

The types of organization provided by TOE's are:

a. *Full strength.*

b. *Reduced strength.*

c. *Cadre.*

d. *B Units.* The TOE's of some of the chemical service units

provide for type B organization. Type B units are commanded and supervised by United States military personnel, but largely manned by auxiliary labor consisting of non-United States personnel (FM 54-1). Interpreters and translators are provided by teams of the composite service organization (TOE 29-500).

5. Mobility

A 100-percent mobile unit, called a mobile unit, is a unit equipped with sufficient organic vehicles for the purpose of transporting all assigned personnel and equipment from one location to another at one time (AR 320-5). Some of the chemical service units have 100-percent mobility and are classed as mobile units. Other chemical service units have percentages of mobility ranging from 10 to 95. A 60-percent mobile unit, for example, is equipped with organic vehicles capable of transporting only 60 percent of the unit's assigned personnel and equipment from one location to another at one time. A unit with mobility less than 100 percent will have to either obtain additional nonorganic vehicles to move at one time or shuttle its organic vehicles in making additional trips to complete the move. The TOE of a unit lists its organic vehicles and its percentage of mobility.

Section II. DUTIES, AND RESPONSIBILITIES OF SMALL-UNIT COMMANDERS, LEADERS, AND KEY PERSONNEL

6. General

a. Scope. The duties and responsibilities of commanders, leaders, and key personnel of chemical service companies and of component platoons and sections are discussed in this section. They are applicable to the commanders, leaders, and key personnel of detachments and chemical laboratories. For information about the duties and responsibilities of other personnel, whose military occupational specialty (MOS) numbers are listed in the companies' TOE's, see SR 605-105-5, which pertains to commissioned and warrant officer personnel, and AR 611-201, which pertains to enlisted personnel.

b. Basic Responsibilities of Commanders and Leaders. The commander or leader of a unit has two basic responsibilities: the accomplishment of his mission and the welfare of his men. The responsibilities of commanders and the principles of leadership are discussed in detail in FM 22-100, FM 100-10, and DA Pam 21-65 and 600-2.

7. Commissioned Officers

The commissioned officer's job consists of tactical, technical, and administrative duties that involve broad command authority,

direct staff responsibilities, or specialization of a professional nature. Common to all commissioned officer MOS's, however, is the constant requirement for proficiency in performing certain basic military duties, such as those pertaining to local administration, training, security, personnel, supply, and transportation.

8. Company Commander

a. The commander is responsible for what his unit does or fails to do. He commands and directs the administrative and operational activities of the unit and is responsible for the successful accomplishment of its mission. He combines his technical qualifications with leadership abilities to weld the unit into a smoothly operating team with high morale, esprit de corps, and discipline. Through planning, supervising, and inspecting, he assures that the unit is equipped, fed, clothed, transported, and trained; that records and equipment are maintained and accounted for; that supply economy, health, safety, security, and defense measures are enforced; that military justice is administered; and that the administrative, tactical, and technical operations of the unit are successfully and efficiently carried out.

b. In discharging his responsibilities, the commander uses the chain of command and develops initiative and responsibility in his subordinate leaders through proper assignment of duties and through timely counseling. He holds his subordinate leaders responsible for setting the example to their men in military bearing, performance of duty, and conduct.

c. The administrative duties of the company commander are listed in AR 220-70.

9. Platoon Leader

In general, the duties and responsibilities of the platoon leader are similar to those of the company or detachment commander. However, when the platoon is operating as part of a company, the platoon leader does not have unit administrative duties. He is responsible under the company commander for directing the operations of the platoon and for training platoon personnel in the technical phases of the platoon's operations and in measures for its security and defense.

10. Noncommissioned Officers

Noncommissioned officers are the backbone of a unit. The success or failure of a unit commander in accomplishing his mission depends to a large extent on his noncommissioned officers. They are the connecting leadership line between the commander and

his men. The duties and responsibilities of noncommissioned officers are listed in AR 220-70.

11. Company Executive Officer

The executive officer is the principal assistant and advisor to the company commander. He coordinates and supervises the many details of administration and operations, thus enabling the commander to devote himself to broad supervision and planning. The executive officer may perform the following specific duties:

a. Keep the commander informed of the situation of both the enemy and the company as to strength, morale, training, equipment, supply, and general effectiveness.

b. Represent the commander during his temporary absence or when authorized to do so.

c. Make decisions in execution of the commander's established policy; refer matters that establish policy to the commander for his decision; and supervise the execution of orders and instructions issued by the commander.

d. Make a continuous study of the company's situation with a view to being prepared for emergencies.

e. Review and coordinate instructions for the company, to avoid violations of policies.

f. Direct the establishment of the company command post in the location designated by the commander and insure that the various elements of the company are properly disposed to facilitate operations.

g. Supervise the keeping of the unit journal.

12. Company First Sergeant

The first sergeant holds a special assignment as the principal enlisted assistant to the company commander. Selected for demonstrated leadership and professional competence, the first sergeant occupies an intermediary position between the other enlisted personnel and the officer of the company. He coordinates, supervises, and conducts routine company administration for and in the name of the company commander. He customarily receives his instructions from the company commander and transmits them through the chain of command and by publishing company orders. The first sergeant must be informed on the technical operations of the company, be fully aware of the duties of the personnel under him, and have a working knowledge and understanding of the commanding officer's duties in order to efficiently assist him. The duties of the first sergeant are listed in AR 220-70.

For a listing of the skill and knowledge, physical, mental, and special requirements for the selection and assignment of a first sergeant, see AR 611-201.

13. Company Supply Sergeant

The company supply sergeant is in charge of the unit supply activities. He is responsible for the acquisition, storage, and issue of the individual and organizational equipment authorized the company. It is also his responsibility to maintain the company supply records for the appointed company property officer.

14. Company Mess Steward

The company mess steward supervises and controls the activities of the mess personnel. He supervises the preparation and serving of food, inspects delivery of subsistence supplies for condition and correct quantity, and maintains a record of mess supplies and equipment.

15. Company Motor Maintenance Sergeant

The company motor maintenance sergeant supervises motor pool operation and organizational maintenance of motor vehicles. He supervises the work of the wheel vehicle mechanics and trains motor vehicle drivers in first echelon and preventive maintenance. He supervises the dispatch and allocation of the company's motor vehicles.

16. Platoon Sergeant

The platoon sergeant is the noncommissioned assistant to the platoon leader. As a member of the cadre, he is responsible for assigned duties in the training of platoon personnel and for security measures to protect the platoon.

17. Heads of Sections

The titles of the heads of sections vary. As examples: the chemical maintenance company's machine repair and testing section is headed by a section chief, whereas its general repair section is headed by an equipment repair foreman; the intelligence section of a chemical laboratory is headed by a chemical engineer. The head of a section is responsible for the technical operations of and mission accomplished by the section.

Section III. COMMON FUNCTIONS OF UNITS

18. Personnel Management

a. General. Personnel management in a unit includes the planning for and organizing, directing, and supervising of per-

sonnel so as to obtain maximum efficient utilization of manpower. The manpower authorized a unit is set forth in its TOE, which also shows the MOS code number and title designation for each duty position. MOS's authorized for commissioned and warrant officers are listed in SR 605-105-5. Enlisted personnel MOS's are listed in AR 611-201.

b. Unit Commander's Responsibilities. The unit commander is responsible for seeing that every man in his unit has an up-to-date record, is properly classified, and is able to perform the job to which he is assigned. He is also responsible for establishing personnel procedures that will—

- (1) Place the right individual on the right job through proper classification and careful assignment.
- (2) Stimulate the individual's desire to produce through adequate incentives.
- (3) Capitalize on the individual's intelligence, interests, and aptitudes through suitable training.
- (4) Utilize the individual fully on essential tasks.
- (5) Insure the individual opportunities for professional development through intelligently planned and progressive rotation of assignments.

c. Personnel Procedures. Personnel procedures utilized by a unit include classification, assignment, reassignment, and promotion. For information about personnel procedures, see FM 101-1; AR 600-series, pertaining to personnel in general; AR 605-series, pertaining to officers; AR 611-series, pertaining to personnel selection and classification; AR 612-series, pertaining to personnel processing; AR 614-series, pertaining to personal assignment; AR 615-series, pertaining to enlisted personnel; and AR 616-series, pertaining to personnel utilization.

d. Enlisted Classification System. The Army's enlisted classification system was designed primarily for use by the unit commander. It is built upon the MOS structure, the testing program, the personal interview, and the cumulative information contained in the enlisted qualification record. It provides a means for the use of the unit commander in classifying and reevaluating men. Guidance for the unit commander in the use of the enlisted classification system is given in DA Pam 611-5 and in FM 101-1.

19. Training

a. Plans. As early as possible after the organizing of a unit has been authorized, the unit commander should make plans and preparation for training and should develop a training SOP. Initial steps that the unit commander should take include the following:

- (1) Obtain copies of DA Pams 108-1, 310-1, 310-2, 310-3, 310-4, 310-5, and 310-7, which include indexes of motion picture films, publications, training aids, and blank forms.
- (2) Obtain copies of the table of organization and equipment applicable to his unit, as listed in DA Pam 310-7; for example: TOE 3-47, Chemical Maintenance Company.
- (3) Obtain copies of the army training program and army training test applicable to his unit, as listed in DA Pam 310-3; for example: ATP 3-47, Chemical Company (Maintenance); and ATT 3-47, Chemical Company (Maintenance).
- (4) Obtain copies of army subject schedules that support the army training program for his unit, as listed in the army training program and in DA Pam 310-3.
- (5) Obtain copies of applicable field manuals, technical manuals, technical bulletins, training circulars, supply bulletins, modification work orders (MWO), lubrication orders, and other publications, as listed in the unit's army training program and in DA Pams 310-1, 310-3, and 310-4.
- (6) Obtain applicable training aids, including training films, graphic training aids, and training devices, as listed in the unit's army training program and in DA Pams 108-1 and 310-5.
- (7) Obtain tables of allowances of supplies and training ammunition appropriate to the unit, as listed in DA Pam 310-7.
- (8) Obtain copies of SR 605-105-5, which lists the MOS's for commissioned and warrant officer personnel, and AR 611-201, which lists the MOS's for enlisted personnel.
- (9) Obtain copies of DA Pam 20-21, which lists the resident courses of army service schools.
- (10) Analyze the unit personnel MOS requirements as set forth in the unit's TOE and consult SR 605-105-5 and AR 611-201 for a description of the duties and qualifications pertaining to each MOS.
- (11) Analyze the qualifications of subordinate officers, warrant officers, noncommissioned officers, and enlisted men for assignment to TOE positions in the unit.
- (12) Make an estimate of the training situation and formulate a training program and a master training schedule, using as a guide the army training program applicable to the unit.

(13) Consult DA Pam 20-21 for information about resident courses pertaining to the MOS's of officer and enlisted personnel of the unit; consult the unit's army training program for a listing of the specialists to be school trained in their MOS's; and arrange early to obtain student quotas for the school training.

(14) Arrange for the use of training areas and facilities for the unit.

b. Conduct of Training. Training is to be conducted according to the principles set forth in FM 21-5, and the methods of instruction are to be in accordance with FM 21-6.

c. Scope of Instruction. The scope of instruction for basic individual combat training is given in ATP 21-114. The scope of instruction for advanced individual training, including branch and specialist training, and for unit training is given in the unit's army training program.

d. Training Ammunition, Supplies, and Equipment. Training ammunition, supplies, and equipment—both expendable and non-expendable—should be issued as prescribed in TOE's, and TA 23-100 and other appropriate TA's.

e. Supervision of Training. Unit commanders are responsible for the supervision of training of individuals and units under their command in accordance with AR's 220-50, 220-60, and 220-70. The training supervision responsibilities of the unit commander are discussed in FM 21-5.

f. Army Training Test. The unit's army training test serves to determine whether the unit is capable of performing its assigned mission and also serves to identify areas in which unit and individual training requires improvement. Army training tests for units are listed in DA Pam 310-3.

20. Rear Area Security and Area Damage Control

a. Rear Area Security. Efficient mission performance by chemical units requires that adequate safeguards be provided to protect personnel, equipment, and facilities from attack of any kind—conventional, nuclear, CBR, or incendiary—or attack by any means—aircraft, missiles, enemy ground action, guerrillas, or sabotage. Moreover, if an attack does occur, the security system should be adequate to minimize the effects of damage and the interruption of operations. Each chemical unit is responsible for defending and securing its own area, for cooperating with other units in defending a specific area containing a number of units, and for providing personnel for the organized rear area security forces, if necessary. Chemical laboratories and small teams (TOE

3-500), however, depend on other organizations for local security of installations against hostile ground attack.

b. Area Damage Control. Area damage control in military operations consists of those measures taken to minimize the immediate effects of natural disasters or large-scale attacks, such as nuclear, chemical, or biological, as an aid to the reestablishment of administrative support. Each commander must be concerned and must be prepared to meet this threat.

c. References. For detailed information about rear area security and area damage control, see FM's 21-40, 21-75, 31-15, 54-1, 100-10, and 101-5.

21. Troop Safety

For information about the protective measures and precautions that troop units must take when traversing contaminated terrain and when occupying areas exposed to chemical agents dispersed by friendly troops, see FM 3-5, FM 21-40, DA Pam 39-1, and TC 101-1 (1958).

22. March and Motor Movement Security

Unit commanders are responsible for the security of their units during movements. March security during movements in friendly territory consists mainly of guards to protect property and equipment. In the army area or in the communications zone where guerrilla, partisan, or air attack is considered a possibility, stronger march security measures must be taken. Air and ground reconnaissance teams provide advance information on the movement of hostile elements. These teams and the information provided must come from troops of other services. Group and battalion S3's will collect and disseminate this type of information to units prior to the beginning of a movement. Chemical units must furnish advance, rear, and flank guards in situations where this protection is considered necessary. (See FM 100-5 for additional information on march security.) Outpost guards will be posted during halts and during bivouac periods en route.

23. Security of Classified Documents

Procedures for the handling, safeguarding, and destruction of documents containing classified information will be accomplished in accordance with AR 380-5. (See AR 345-200-series for disposition authority for classified documents and for instructions for preparation of an SOP for the emergency destruction of classified documents.)

24. Destruction of Equipment

In a retrograde movement, equipment and supplies that cannot be evacuated are destroyed. Destruction procedures are given in technical manuals covering the specific items of equipment. The simplest possible methods should be used to accomplish the desired purpose. Actual destruction is accomplished on orders or approval of higher headquarters.

25. Safety

a. General. To more efficiently utilize its resources and to advance its effectiveness, each unit must keep at a minimum its manpower and property losses due to accidents. Because injuries and accidents can seriously hamper a unit's operations, each unit must make a continuing and aggressive accident prevention effort compatible with its mission.

b. Responsibilities of Unit Commander. The unit commander is responsible for the prevention of accidents involving personnel, operations, and activities of his unit. He is responsible for insuring that adequate safe practice and safe physical standards are incorporated in all directives, standing operating procedures, and training documents. He should insure that the safety standards are complied with in all operations and activities for which he is responsible and he should initiate the necessary corrective action to eliminate or control inherent or accident-producing hazards. The unit commander is responsible for integrating accident prevention into all operations and activities under his direct command or supervision and should maintain an aggressive safety program adequate to the needs of his unit. He is also responsible for determining the cause of accidents and for seeing that corrective action is taken to prevent their recurrence.

c. Responsibilities of Supervisors. In their daily contacts with operating personnel, supervisors and foremen are in a position to witness working conditions and the hazards to which operating personnel are exposed. The supervisors and foremen are the persons through whom the full force and effect of all accident prevention measures find application in daily operations. They should frequently and periodically brief all personnel on safety procedures, elicit suggestions on the improvement of safety practices, and publicize newly adopted safety procedures. They should also reimpress workers with the need for constant alertness and observation of safety measures so that familiarity with certain operations will not result in unwarranted shortcuts or laxity in job performance that could increase the accident rate.

d. Responsibilities of Individuals. Accident prevention is the

direct responsibility of every individual. Personnel should be made to realize that safety rules have been established for their protection and welfare. It is their responsibility to follow safety instructions in the use of tools, machinery, and equipment. Cooperation between workers and supervisors, as well as among workers, is essential to the development and practice of safe working habits and to the prevention of injuries to personnel and damage to material and property.

e. Training in Safety Operations. Safety is of special importance in the training of chemical service units. It is an integral part of the proper and efficient method of operating the unit's equipment. References pertaining to the principles, techniques, methods, and rules for safety are given in appropriate army subject schedules supporting army training programs. Information about safe practices and safety measures is disseminated by personal instruction of individuals or by means of manuals, Army Regulations, directives, SOP's, equipment operating instructions, and other publications.

f. Safety Program. A safety program for the prevention of accidents should be designed to cover all operations and to consider conditions peculiar to those operations. It should be based on the provisions outlined in Army Regulations of the 385-series.

g. Accident Reporting. Procedures for investigating, recording, and reporting accidents are given in AR 385-40.

26. CBR Intelligence

Personnel of Chemical Corps units may assist in the location and collection of technical information through early contact with captured enemy personnel. Chemical Corps unit personnel may perform the following specific CBR intelligence functions:

a. Prevent careless handling of captured CBR materiel before its intelligence value and usefulness can be fully ascertained by qualified personnel.

b. Recognize enemy equipment or supplies that appear to be of special CBR intelligence interest to the command, the Chemical Corps, or other technical service.

c. Recognize the presence of individual prisoners of war (or civilians) with specialized knowledge valuable to one of the intelligence agencies.

d. Promptly notify the appropriate intelligence agency concerning any of the elements mentioned above.

27. Unit Supply

a. General. Based on its TOE, appropriate TA's, and other equipment lists, each unit maintains items of supply as required

for training and operations. Classes of supply (I, II, III, IV, and V) are defined in AR 320-5.

b. *Echelons.* There are two echelons of unit supply: first and second.

- (1) *First echelon supply* is that phase of supply performed by the individual user, wearer, or operator in the acquisition of authorized initial, replacement, or replenishment supplies and equipment from unit supply.
- (2) *Second echelon supply* is that phase of supply performed by specially trained and designated personnel of the using organization in the acquisition, distribution, and accounting for authorized initial, replacement, and replenishment supplies and equipment at the organizational level.

c. *Technical Service Items of Supply.* Items of equipment supplied by the Chemical Corps and by the various other technical services are listed in the equipment section of the unit's TOE, in appropriate TA's, and in supply bulletins. Chemical Corps items include such supplies as protective masks, chemical agent detector kits, decontaminating apparatus and materials, clothing impregnating plants, smoke generators, flamethrowers, toxic agents, chemical munitions, and chemical handling equipment. Some chemical-filled munitions, such as the 105-mm howitzer GB gas projectile, are supplied in the field by ordnance units.

d. *Responsibility.* The unit commander is responsible for equipping his unit with supplies and equipment in accordance with pertinent TOE's, TA's, and other equipment authorizations. He is required to insure through inspection and supervision that the property of his unit is safeguarded, protected from fire, cared for and properly stored, used, and accounted for. In addition, he is responsible for the administration of supply procedures of his unit.

e. *Supply Economy.* Supply economy is the practice of conservation of materiel by every individual in the Armed Forces. It includes proper maintenance, salvage, vehicle recovery, evacuation of captured materiel, prevention of hoarding, and prevention of waste. It is developed by indoctrination of personnel with the importance of supply, by enforcement by officers and noncommissioned officers of the unit, and by practice and training until supply economy becomes a habit. The training stresses the proper use of food, clothing, weapons, fuel, motor vehicles, mechanical apparatus, protective devices, and other equipment and supplies. The quantity of equipment and supplies should be that which is actually needed. No individual should be permitted to throw away prescribed equipment, to use transportation unnecessarily, or to handle supplies carelessly or wastefully.

f. Supply Procedures. Procedures to be used in requesting, receiving, and accounting for supplies, including repair parts, issued to a TOE unit are given in AR 735-35.

g. Salvage. Property that is damaged, worn, or otherwise un-serviceable can be salvaged and replacement requisitioned. Salvaged materiel is turned in to the designated depot. Procedures governing reports of survey and statements of charges are included in AR 735-11.

28. Organizational Maintenance

a. General.

- (1) Organizational maintenance is that maintenance which is authorized for, is performed by, and is the responsibility of the using organization on its own equipment. Organizational maintenance consists largely of preventive maintenance and the replacement of minor parts not requiring highly technical skills.
- (2) Preventive maintenance is the systematic care, servicing, inspecting, cleaning, preserving, lubricating, and adjusting of equipment for the purpose of maintaining it in serviceable condition and for detecting and correcting incipient failures. Preventive maintenance is the most important and essential function of organizational maintenance. It is a vital factor in supply economy and is the cornerstone of efficient and economical maintenance.
- (3) Preventive maintenance services performed by individuals and by using organizations are of utmost importance. When performed in accordance with instructions given in pertinent technical manuals, they will keep the equipment in the best possible operating condition, reduce the need for replacement parts, and prolong the life of the equipment. Preventive maintenance decreases the amount of servicing and repairs required by higher echelons, with the saving of considerable time and expense. Most important, conscientious performance of preventive maintenance services may result in the saving of lives and the success of military missions.
- (4) Operations forms and preventive maintenance worksheets to be used in conjunction with organizational preventive maintenance services of Chemical Corps equipment are listed and described in TM 3-313.
- (5) Information about preventive maintenance is published in DA Pam 750-1.

b. *Echelons.* There are two echelons of organizational maintenance: first and second.

- (1) *First echelon maintenance* is that degree of maintenance performed by the individual user, wearer, or operator of the equipment.
- (2) *Second echelon maintenance* is that degree of maintenance performed on the unit's equipment by mechanics and other specially trained personnel of the unit. This echelon of maintenance is beyond the capabilities and facilities of the first echelon. Repairs requiring parts and tools not supplied the unit and repairs requiring technical skills beyond those of the company personnel are performed by higher echelons of maintenance.

c. *Responsibility.*

- (1) *Unit commander.* The unit commander is required to insure that all equipment issued or assigned to his organization is maintained in a serviceable condition and is properly used and properly cared for. Further, he is responsible for insuring that all personnel under his command comply with technical instructions for maintenance of the equipment. He is also responsible for the prevention of abuse of the equipment. (See AR 750-5.) Information about preventive maintenance responsibilities of unit commanders is given in DA Pam 750-1.
- (2) *Individual.* Each individual in the Army is responsible for the proper care and proper use of equipment issued or entrusted to him. The individual user or operator of equipment is responsible for the performance of all first echelon maintenance services and for the preparation of records and reports prescribed in Department of the Army publications that deal with operation and maintenance of his equipment.
- (3) *Unit mechanics and repairmen.* Mechanics, repairmen, and other specially trained unit personnel are responsible for the performance of second echelon maintenance services prescribed for their equipment in Department of the Army publications such as technical manuals, technical bulletins, and lubrication orders.
- (4) *Platoon, section, and squad leaders.* In the preventive maintenance of equipment, each platoon, section, and squad leader is responsible for properly utilizing equipment, enforcing necessary means to prevent misuse and abuse of equipment, actively supervising first echelon

maintenance services of equipment, and reporting to his next immediate superior of any instance of inadequate maintenance performed by a higher echelon.

29. Maintenance Inspections

Maintenance inspections are the means whereby commanders ascertain the serviceability of equipment and the efficiency of maintenance. The inspecting system is outlined in general terms in AR 750-5 and, more specifically (as applied to the equipment of each technical service), in supporting regulations of the same-numbered series. AR 750-8 requires that a major annual command maintenance inspection of each unit be conducted for the purpose of making a single inspection report available to major commanders and to the heads of technical services.

30. Replacement of Unserviceable Equipment

When a chemical unit's unserviceable equipment cannot be repaired within a reasonable period of time or when immediate replacement is required for operational reasons, the unserviceable equipment may be directly exchanged by the maintenance unit for serviceable equipment. Equipment that a maintenance unit is authorized to carry for direct exchange with the using unit is called maintenance float stock. Chemical maintenance float stocks are prescribed in SB 3-34.

31. Tools and Repair Parts

a. Authorized quantities of maintenance tools and repair parts are supplied a using unit in the initial issue of equipment, based upon requirements.

b. Allowances for repair parts, authorized by technical manuals or stockage lists, are carried by the unit as a prescribed load. This load includes the repair parts carried by the individual soldier, stowed in equipment, and carried on vehicles. Major commanders will determine the number of prescribed loads that the unit will carry.

c. Below depot level, the supply of parts to using units is normally through maintenance channels instead of regular supply channels. At field maintenance level, the combination of maintenance support and parts supply to using organizations is a basic logistic principle.

d. Repair parts required for organizational maintenance are issued to using units by direct-support field maintenance units. The following principles must be considered in the formulation of sound procedures for the issue of repair parts:

- (1) The procedures should be kept simple and paperwork eliminated wherever possible. Direct-support contact teams should, whenever possible, replenish stocks of repair parts without requiring requisition.
- (2) Direct exchange between the using units and the maintenance teams of all technical services should be used when unserviceable items cannot be repaired expeditiously.
- (3) Close liaison between unit supply and direct-support maintenance personnel should be emphasized.
- (4) Command supervision should be exercised to prevent the hoarding of repair parts.

32. Maintenance Publications

a. Technical instructions about maintenance are given in technical manuals, technical bulletins, lubrication orders, and other technical publications on equipment. For a listing of the publications, see DA Pam 310-4.

b. The authorized scope of maintenance assigned to each echelon of maintenance is listed in the maintenance allocation chart of the equipment technical manual. Repair parts stock lists and parts authorizations applicable to the maintenance echelon are also included in the manual.

33. Maintenance Record Forms

Maintenance record forms are listed in appropriate equipment technical manuals and in DA Pam 310-2. Information about filling out the forms is also given in the manuals. Forms for use in preventive maintenance of Chemical Corps equipment are listed and explained in TM 3-313.

34. Movement

a. *General.* Movement of a unit may be accomplished by motor, rail, air, or water, or by a combination of these methods. When a unit is to change location, the method of movement is set forth in the movement order. The unit commander is responsible for organizing and training his unit for movement and for the preparation of plans relating to the movement of his unit. He will be required either to calculate movement requirements or to furnish information, such as a unit personnel strength and equipment weight and cubage data, to movement requirement planners of higher headquarters.

b. *Motor Movement.* Information is given in FM 25-10 about the preparation of unit loading and unloading plans; movement

planning techniques and planning aids; march graphs and movement SOP; security during movement; march formation; and traffic control measures. See FM 3-8 for information about requirements for motor vehicles to move a chemical service unit at one time. CBR monitoring personnel located in lead vehicles should conduct continuous monitoring during a unit's motor movement.

c. Rail Movement. The duties and responsibilities of a unit commander pertaining to movement planning and to movement of the personnel and equipment of a unit by rail are given in AR's of the 55-series. Information about rail requirements for movement of chemical service units is given in FM's 3-8 and 101-10.

d. Air Movement. The unit commander is responsible for preparing an air movement plan and for training the unit in the principles and techniques of air movement. He is also responsible for aircraft loading—for lashing and for loading and unloading supplies, equipment, and unit personnel. Technical assistance is received from Air Force or Army aviation personnel. The duties and responsibilities of the unit command pertaining to air movement are given in AR's of the 59-series and in TM 57-210. For information about air movement planning and loading and unloading aircraft, see TM 57-210. Information about aircraft requirements for movement of a chemical service unit is given in FM's 3-8 and 101-10.

e. Water Movement.

(1) *General.* The duties and responsibilities of the unit commander pertaining to movement of the unit by water are given in AR's of the 55-series. Detailed instructions and information pertaining to space allocations, priorities, or other matters will be supplied by port authorities and the Military Sea Transportation Service.

(2) *Tactical.* For information about requirements for movement of a unit by landing craft and by assault-type vessels, see FM 101-10.

f. Equipment Movement Tables. The unit commander is required by army regulations of the 55-series to prepare and maintain a current set of equipment movement tables. The data include the quantity, weight, and cubage of the items of equipment and also a bill of material showing the quantity of packing and crating material needed to crate equipment and the quantity of material necessary for blocking and bracing the organic vehicles for a rail movement. Data for preparation of the tables may be obtained from the unit TOE, supply manuals, and technical manuals or

may be obtained by counting, packing, weighing, and measuring items of equipment. Changes in TOE or the issue of substitute items of equipment will require constant review and revision of the movement tables. Each mode of transportation in which the unit may move will require a particular set of data. For example, small items of equipment may be packed together for a move by ship, whereas these items could be loaded in organizational transport if a motor movement is to be made.

g. Preparation of Equipment for Shipment. For information about the packing, preparation, and processing of equipment for shipment, see the technical manual pertaining to the specific item of equipment. Information about loading motor vehicles for shipment by rail is given in SB 9-4.

h. Transportation of Supplies. For information about the transportation of ammunition and explosives, see AR's of the 55-series. For information about the transportation of chemical agents and hazardous chemicals, see TM 3-250 and AR's of the 55-series.

i. Oversea Movement. For information about the preparation of a unit for movement overseas, see AR's of the 55-series.

35. Reports, Records, and SOP'S

The preparation and maintenance of reports, records, files, and SOP's are functions common to a unit.

a. Reports, Records, and Files. Various unit reports, records, and files are required by directives from higher headquarters. Others are required by army regulations and include personnel records, reports, and files as listed in AR 345-5. Also included are morning reports, unit journals, and unit histories as required by AR's of the 220-, 235-, and 345-series. Supply records are maintained in accordance with AR 735-35.

b. SOP's. SOP's are sets of instructions, usually in writing, giving the methods and procedures to be followed by a unit for the performance of those operations—tactical, administrative, and technical—that the commander desires to make uniform and routine. Preparation of a company SOP is a responsibility of command. For information about the preparation of an SOP, see FM 101-5.

Section IV. AUXILIARY LABOR

36. General

The use of auxiliary labor in increasing the scope and capacity of chemical services may be necessary for support of operations in a theater. The extent to which auxiliary labor is used will depend on the amount and type of labor available, on the tactical situation, and on the need.

37. Sources

Sources of labor that will normally be available in a theater of operations include native (indigenous) civilian labor, prisoners of war, and allied military personnel.

38. Procurement and Utilization

a. Native civilian labor is normally obtained locally under the direction of G1. Civil affairs detachments establish and supervise local labor offices, which assist military forces with the procurement and administration of native civilian labor.

b. Prisoner-of-war labor is obtained from military police processing camps through G1. The treatment, control, and limitations on the use of prisoners of war are covered in FM 27-10 and DA Pam 27-1. Information concerning prisoners of war is covered in TM 19-500.

c. Allied military labor is made available through military and diplomatic channels of the nations involved.

39. Factors for Consideration

a. Supervisors of foreign auxiliary labor must be United States military personnel.

b. Foreign foremen and others in direct charge of foreign labor activities are responsible to the United States military supervisors. The foreign foreman should be from the same country and preferably of the same race and from the same community as the foreign labor.

c. Thorough screening of potential labor, together with careful supervision, will help deter subversive activities.

CHAPTER 2

CHEMICAL DEPOT COMPANY, COMMUNICATIONS ZONE

Section I. GENERAL

40. Mission

The mission of the chemical depot company, communications zone (TOE 3-117), is:

a. To receive, classify, store, issue, and perform surveillance on Chemical Corps supplies, ammunition, and equipment in the communications zone.

b. To fill munitions not normally filled in the zone of interior.

41. Assignment

The chemical depot company, communications zone, is assigned on the basis of one company per 200,000 troops, or major fraction thereof, in the theater of operations.

42. Location

a. The unit is normally located near a port of entry or along lines of communication in the communications zone (fig. 1). A site suitable for chemical depot operations is assigned by the directorate staff of the logistical command in coordination with the chemical officer of the logistical command. Factors for consideration in the selection of a depot site are discussed in paragraph 56.

b. The depot commander must continually plan for relocating his installation so that supported troops will be insured a continuous and adequate flow of chemical supplies. It is his responsibility to notify higher, adjacent, and lower units of proposed and actual movements of his depot, including the time of the opening and closing of the installation. He must plan for alternate locations should an enemy attack force movement of the depot.

43. Capabilities

a. When labor forces are furnished by quartermaster service troops or other labor sources, depending on workloads imposed by varying stock levels, this unit, at full strength, is capable of receiving, storing, performing surveillance of, and issuing Chemical Corps class II, IV, and V supplies in the communications zone.

b. At reduced TOE strength, the unit can operate in support of combat operations for a limited period or can support noncombat operations for a prolonged period.

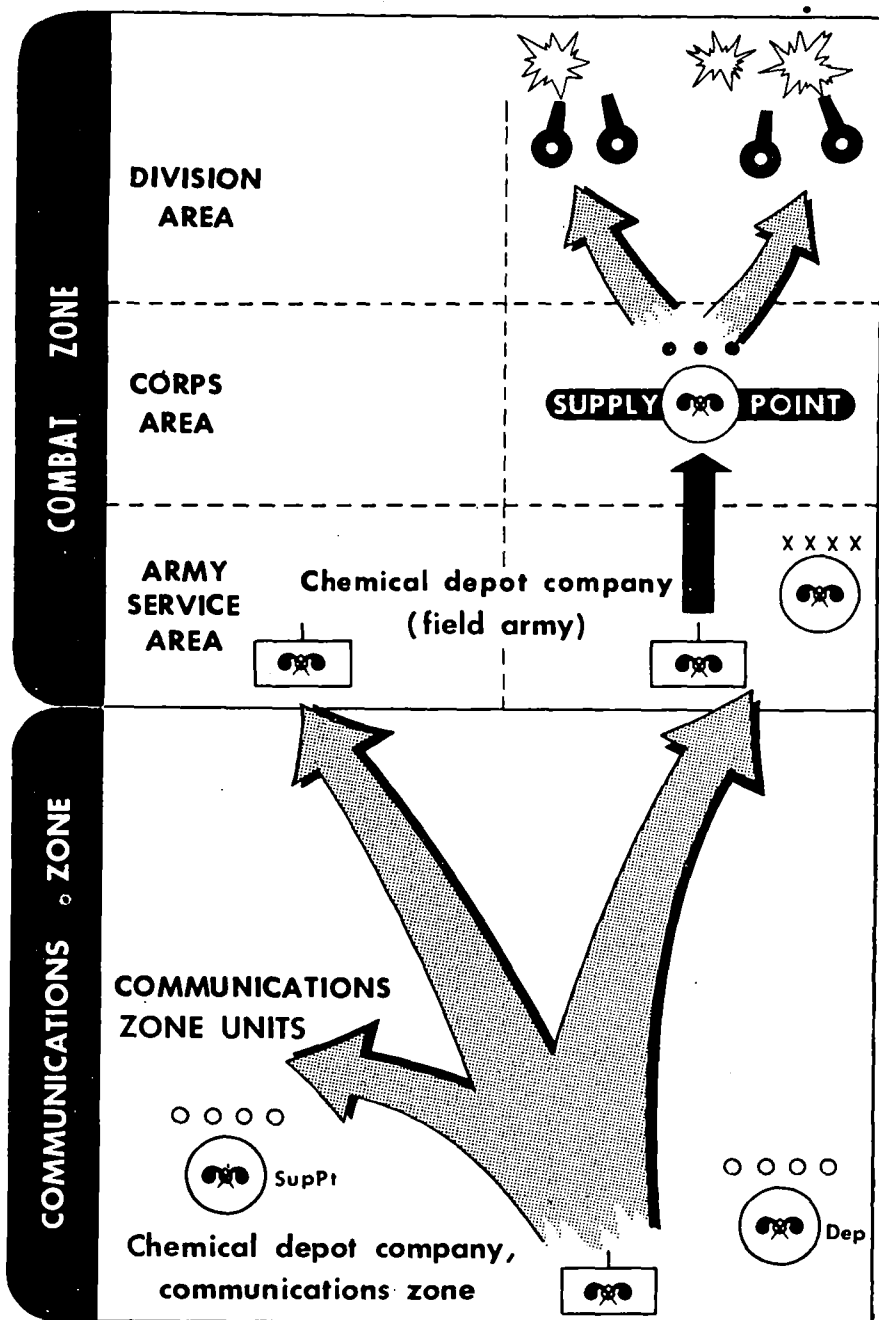


Figure 1. Location of chemical depot company, communications zone, and flow of supplies.

c. The unit will be attached to or dependent upon other units for medical and religious support and for labor sources.

d. Individuals can fight as infantrymen when required. The unit depends on other organizations for local security of installations against hostile ground attack.

e. The unit has a mobility of 95 percent.

Section II. ORGANIZATION AND FUNCTIONS

44. Organization

The chemical depot company, communications zone (fig. 2), is composed of a company headquarters, a stock control branch, and a storage branch.

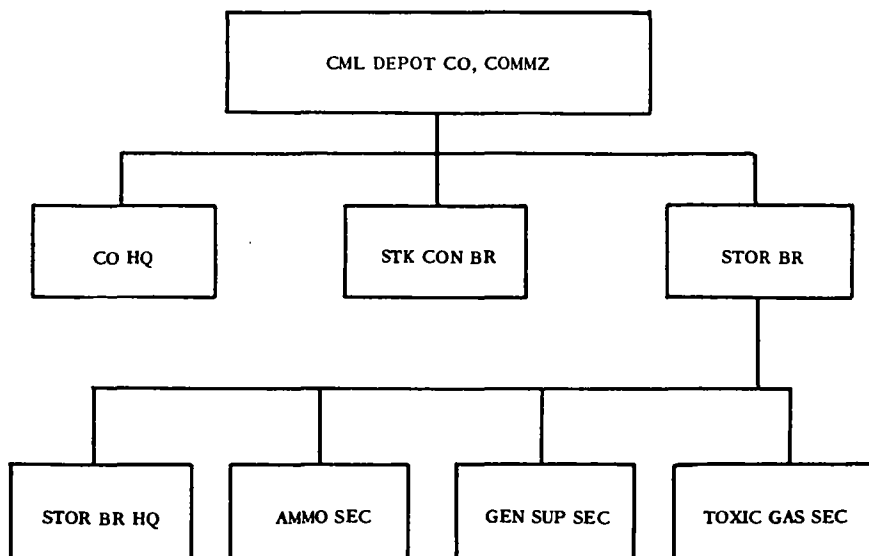


Figure 2. Organization of chemical depot company, communications zone.

45. Company Headquarters

a. *Organization.* The composition of company headquarters is shown in TOE 3-117.

b. *Functions.* Functions of company headquarters personnel include command responsibilities; administration of company records and reports; supervision of depot operations, property, and administrative activities; and operation of company supply, mess, and motor pool activities.

46. Stock Control Branch

a. *Organization.* The composition of the stock control branch is shown in TOE 3-117.

b. Functions. Functions of this branch include the processing of requisitions; operation of stock records, locator, and inventory systems; preparation of shipping documents, vouchers, and other property documents; maintenance of stock levels; replenishment of stock; and maintenance of accountable property records.

47. Storage Branch

a. Organization. The storage branch (fig. 2) is composed of a storage branch headquarters, an ammunition section, a general supply section, and a toxic gas section. The composition of the storage branch headquarters and the three sections is given in TOE 3-117.

b. Functions. Functions of the storage branch headquarters and of the three sections are given below:

- (1) *Storage branch headquarters.* Functions of storage branch headquarters include coordination between depot headquarters and the storage area; supervision of the receipt, storage, and issue of equipment and supplies; maintaining locator charts and stock locator cards; inspection and classification of materiel; computation of storage space requirements; and supervision of the surveillance, disposal, and shipment of equipment and supplies.
- (2) *Ammunition section.* Functions of this section include the storing and handling of chemical ammunitions and munitions.
- (3) *Toxic gas section.* Functions of this section include the storing and handling of 1-ton containers, 55-gallon drums, and other bulk containers of toxic agents; and filling munitions with toxic agents from the large containers.
- (4) *General supply section.* Functions of the general supply section include the storing and handling of chemical supplies, repair parts, and materiel other than chemical ammunition and munitions and toxic agents.

48. Type B Organization

The chemical depot company, communications zone, is adaptable to a type B organization. The capabilities of a type B organization are the same as those of a full strength organization.

Section III. EQUIPMENT

49. General

A detailed list of organizational equipment of the chemical depot company, communications zone, is given in TOE 3-117.

50. Communications Equipment

a. Communications equipment authorized the unit consists of six telephones, which are allotted on the basis of one each to the company headquarters, stock control branch, storage branch headquarters, and the three storage sections. A suggested hookup for the telephones would be to use five of them in a closed circuit for communications between sections of the company and to connect one of them to the higher headquarters switchboard.

b. The six telephones furnished the company for communications should be installed as soon as possible after the depot area is selected. The limited amount of communications equipment afforded the unit will force it to utilize existing lines and facilities to the utmost. At least one telephone will be connected to the switchboard of the chemical service battalion or other immediate higher command headquarters.

51. Transportation Equipment

The company is limited to the minimum number of motor vehicles required for company functions, including administration, liaison, reconnaissance, and supply. Company personnel and equipment may be moved from one location to another by shuttling the company's organic motor vehicles. Information is given in FM 3-8 about the requirements for additional motor vehicles for movement of the company at one time. The company is not provided with organic motor vehicles for movement of the depot stock. Requirements for this movement vary with the size of the depot and must be calculated separately.

52. Materials Handling Equipment

Materials handling equipment authorized the company for communications zone depot operations include cranes, tractors, fork-lift trucks, and specially designed devices for hoisting and handling large containers of toxic agents and for filling munitions with toxic agents from large containers. Detailed information about materials handling equipment is given in TM's 3-250, 3-255, 10-1619, and 743-200.

Section IV. TRAINING

53. Training in Principles of Depot Operations and Storage

All company personnel must be well grounded in the basic principles underlying depot operations, in the basic principles of storage as prescribed in TM 743-200, and in the methods of handling and storing chemical agents and hazardous chemicals as prescribed in TM 3-250.

54. Training in Improvisation of Storage Facilities

Constant emphasis must be given to the probable need for improvising storage facilities. Whereas basic storage principles must be followed whenever possible, men must be taught to improvise readily. As time, men, and storage space are even more critical in theaters of operations than in the zone of interior, the three must be conserved and fully utilized.

Section V. OPERATIONS

55. General

a. Personnel of the chemical depot company, communications zone, may be used to operate a chemical depot, a chemical subdepot of a general depot, or chemical supply points. Information in this section on depot company operations is generally applicable to either a chemical depot, subdepot, or supply point.

b. A chemical depot receives, stores, preserves, ships, and issues chemical supplies. The supply principles that have proved their value in the zone of the interior continue to be of value in theaters of operations. Changing conditions will force changes in method, but these should not violate sound principles. There must be dispersal of supplies but, even in scattered areas, stock must be stored efficiently. The lack of materials handling equipment does not excuse slipshod storage methods. A depot's resources of storage space, manpower, and equipment must be utilized fully in getting needed supplies in the proper condition to the right place on time. Since chemical supplies include ammunition and other hazardous items, safety procedures must be complied with to minimize loss of life and materiel from incidents occurring during storage.

c. The normal source of materiel for a communications zone depot is from the zone of interior on a requisition basis. Salvaged, reclaimed, rebuilt, or locally manufactured articles can be obtained from a chemical maintenance company to augment supplies obtained by normal requisition. Using such materiel is a form of supply economy and is to be encouraged.

d. For detailed information about methods, principles, and techniques of storage; use of materials handling equipment; space layout; stacking principles; preservation of supplies; safety procedures; and storing and handling of chemical agents and hazardous chemicals, see FM's 100-10 and 101-10; and TM's 3-250, 3-255, 38-230, and 743-200.

56. Factors in Selection of Site For Depot, Supply Installation, or Supply Activity

a. General.

- (1) Factors for consideration in depot site selection apply generally to site selection for a subdepot, supply point, or other supply installation and activity.
- (2) Selection of a depot site should include consideration of the mission of the unit; the tactical situation; the climate; the possibility of nuclear and CBR attacks; the road net; the proximity of railhead, truckhead, and other major transportation facilities; and the suitability of the site for a rapid movement of supplies into and out of the depot.
- (3) The site of a depot in the communications zone should be as permanent as possible; whenever practicable, existing buildings should be utilized. Other factors to be considered include disposition of other installations; choice of alternate sites; terrain; concealment or camouflage possibilities; availability of troop housing; storage space requirements; and size and type of the depot support mission.

b. *Survey of Area.* Survey of the area is conducted to determine the extent and degree of contamination resulting from prior CBR attacks, and standard CBR markers (FM 21-40) are placed to indicate the area of hazard.

c. *Convenience.* Convenience of the depot to using troop units is essential. The depot should be near a good road net on which alternate routes are available. The use of an intransit area or an intransit warehouse may frequently facilitate issuance of supplies to using troops.

d. *Storage Space Requirements.* Storage space requirements should be computed according to the methods prescribed in FM 101-10 and in TM's 3-250 and 743-200 to determine the area needed for operations. Room for expansion of the depot facilities should be considered when initial requirements for storage space are calculated. Future requirements for additional space will depend on various factors, such as an increase in supported troop strength.

e. Use of Existing Buildings.

- (1) *Advantages.* The utilization of existing buildings is an economy factor and allows the unit to begin operations sooner than would otherwise be possible. The use of existing buildings is not so likely to attract the attention of enemy air observation as the use of newly constructed buildings would be.

- (2) *Disadvantages.* Existing buildings are seldom well suited for use as warehouses unless designed as such. The problem of providing proper dispersion is more difficult when an attempt is made to use existing buildings.

f. Locations Near Urban Areas.

- (1) *Advantages.* An urban area offers the advantages of a more plentiful labor supply; better transportation and communications facilities; and available buildings for use as warehouses, troop housing, and headquarters and mess buildings.
- (2) *Disadvantages.* It must be assumed that good depot locations in or near an urban area are known to the enemy and that these locations will be subject to enemy air attack. Since toxic agents and ammunition cannot be stored near an inhabited area, the use of an urban area may force the unit into more widespread dispersion of the depot areas than is economical for efficient operations.

g. Concealment and Camouflage. The large-scale operations of a communications zone depot make concealment a difficult problem. The use of existing facilities is a form of camouflage as long as signs of unusual activity can be concealed from the enemy. A site should be selected that can be used with as little modification to terrain features as possible.

h. Terrain. Several important terrain features should be considered in the selection of the depot site. High, firm ground aids drainage, reduces the amount of dunnage needed for storage of supplies, and helps in the expeditious delivery of supplies by minimizing the possibility of vehicles becoming bogged down by mud.

57. Layout of Depot Areas

a. Component Areas. The depot installation consists of several component areas, including the unit command area, stock control and storage headquarters area, motor pool area, general supply storage area, ammunition storage area, and toxic gas storage area.

b. Plans for Depot Layout. After the depot site has been selected, the depot commander immediately plans the depot layout. The ideal plan minimizes the number of times that supplies must be handled, provides for an uninterrupted flow of work through the storage areas, promotes easy traffic control, and provides for expansion and contraction of the installation without loss of efficiency.

- (1) *The unit command area,* including the company headquarters, company mess, and company supply, should be

in a central location easily accessible to all parts of the depot. The troop billeting area should be as close as practicable to this area for accessibility and safety.

- (2) *The stock control and storage headquarters area* should be placed in the same general location, preferably in the same building or in adjacent buildings, in order to facilitate depot operations. It is also desirable that this location be such that both incoming and outgoing depot truck traffic must pass by it. Incoming requisitions can then be processed by stock control, be passed to storage headquarters, and have a guide assigned—all in one stop. Paperwork can then be completed while the stock is being picked up.
- (3) *The general supply storage area and motor pool area* should be located close together. Most of the depot stock will be general supplies; moreover, these are the supplies that require most of the warehouse storage space. Since most of the materials handling equipment and vehicle-mounted equipment will be required by the general supplies section, the general supply area should be close to the motor pool area, and both of the areas should be close to railhead, truckhead, or other unloading points.
- (4) *The ammunition area* should be adaptable to the construction of revetments or magazines. The ground should be firm and well drained, and there must be adequate room for dispersion and expansion. The required distance from other areas is determined by the type of ammunition and existing safety regulations.
- (5) *The toxic gas area* must be at least 200 meters from other areas and, on the basis of prevailing winds, should be downwind from other areas and from friendly troops. These requirements may force the area to be located at a considerable distance from the main depot area.

58. Preliminary Work at Company Site

Before the unit moves in, groundwork is laid for efficient and secure operation.

a. *Security* is provided by detailing a temporary force to protect the site from enemy action or sabotage. If the area is located in territory recently controlled by enemy troops or native guerrillas, it is also inspected for boobytraps.

b. *Roads*, all one-way, are laid out as required by location of the storage areas. The road network is marked with signs, prepared in advance. Signs are also used to indicate such limiting factors

as weak bridges, steep grades, sharp curves, and fords and the types of surfaces and conditions of all roads. If the area is to be occupied at night, reconnaissance personnel should place markings visible at night at the base of trees and other prominent landmarks along the route.

c. Paths are established well in advance to prevent haphazard paths that may be detected by enemy aerial observers. All available concealment is utilized in selecting and marking paths.

d. Markers are placed to indicate the locations of company headquarters, motor pool, and other company installations.

e. Movement schedules are prepared to prevent congestion when the area is being occupied. Key personnel and installations are moved first.

f. Guides are appointed from among members of the reconnaissance party to direct each part of the company convoy to its proper destination.

59. Storage Space Layout

a. General. When the site of the depot has been determined and the amount and kind of supplies to be stored are known, more detailed plans are made for storing supplies according to space requirements. The plan for allotment of space is based on storage factors provided in FM 101-10 and in TM's 3-250 and 743-200.

b. Segregation of Supplies.

(1) Safety considerations require that chemical class II and IV supplies be segregated from chemical agents (class V supplies) and from chemical ammunition (class V supplies). Class II and IV supplies are stored in accordance with the provisions of TM 743-200. Chemical agents in containers are stored separately from chemical ammunition in accordance with quantity-distance factors prescribed in TM 3-250.

(2) In addition to providing safety, subdivision of the storage site into areas provides dispersion of supplies.

60. Types of Storage

There are two general types of storage in the field: covered and open. The type of storage used for specific supplies and equipment depends upon the protection required. Information about covered and open storage is given in TM 743-200.

a. Covered storage in warehouses and sheds is desirable for approximately 80 percent of chemical class II and IV supplies. Covered storage requirements are negligible for class V supplies in field operations.

- (1) *Warehouse storage* is used for supplies that cannot be exposed to weather. Existing buildings are used or modified for use whenever possible; however, for large-scale depot operations, depot warehouses may have to be constructed. Such stock as protective masks, and miscellaneous protective materials and equipment that are affected by temperature and humidity variations are stored in warehouses whenever possible.
- (2) *Shed storage* is normally used for supplies that need protection from rain, sun, and snow but not from temperature and humidity variations.
- (3) *Magazines* are highly desirable for chemical ammunition storage. Above-ground-type magazines or revetments are prescribed for toxic-filled ammunition. Existing buildings may be utilized to keep ammunition cool and dry if appropriate safety regulations are followed.

b. *Open storage* is used for storing supplies for which no building space is available, for materiel that is not affected by weather, and for toxic agents in bulk containers. Tarpaulins may be placed over materiel to protect it from direct rays of the sun. Dunnage is placed under stacks.

61. Toxic Gas Storage

Toxic agents, whether in bulk containers or in ammunition, should be stored downwind of friendly troops whenever possible. When the toxic gas area is a part of a consolidated ordnance ammunition storage area, the chemical depot company will assume responsibility for the toxic section. Toxic agents must be stored according to their reaction on each other and in groups, as prescribed in TM 3-250. An adequate source of water for use as a decontaminant is very important. A specific area should be set aside for decontaminating empty containers and other materials; another specific area should be designated as a chemical agent transfer area. A decontamination station should be constructed in the area. Reinforced bunkers should be constructed for protection of critical materiel.

62. Storage Expedients

Storage expedients are a vital consideration of a depot commander. The depot must always be prepared to handle stock before adequate preparations for storage have been completed. A survey should be made to determine the possibilities for temporary storage as soon as possible after the unit has occupied an area. Any available buildings may be utilized for items requiring warehouse storage. Parallel rows of logs may be utilized as field

expedients for storage of bulk containers of toxic agents. In case of necessity, items normally requiring covered storage may be stored on hardstand. Dunnage and tarpaulins will reduce damage from exposure under these conditions. Specific storage expedients will depend on the location of the depot and the ingenuity of the commander and the storage personnel.

63. Opening and Closing of Depots

a. When a chemical depot company, communications zone, receives orders to take over the area and operations of another depot company, the depot commander or his representative should check the existing depot layout and facilities and recommend any necessary changes. Accountable property is transferred in accordance with pertinent army regulations.

b. When a depot is closing out its operations, all stock will be inventoried prior to the transfer of accountability or responsibility and prior to packing for shipment. A movement plan will be prepared, and higher headquarters will be notified of the exact time when operations will cease and of the approximate departure time. If it is necessary for operations to continue during a move from one location to another, a plan must be evolved that will allow part of the unit to move and set up operations at the new location before the entire move is completed.

64. Surveillance, Recovery, and Salvage

a. *Surveillance.* Depot stock is subjected to periodic surveillance inspection to insure that only serviceable materiel remains in the supply channels. Serviceability standards designate the exact basis for the surveillance of each specific item. Higher headquarters will designate surveillance inspections and coordinate and supervise surveillance activities. Serviceability standards are given in the SB 3-30-series and the AR 742-series.

b. *Recovery and Salvage.* The primary responsibility for recovery lies with combat zone troops and service troops. The chemical depot company, communications zone, will not normally handle recovered items except for serviceable items turned in to the depot by a chemical maintenance unit. (The chemical maintenance company is primarily responsible for salvage operations involving chemical items handled as chemical salvage.) Normal maintenance operations will result in reclaimed, rebuilt, and repaired items that may be shipped to the depot and processed through normal receiving procedures for storage and issue. In the event of activity resulting in a large amount of salvage, much of the salvage will be turned over to the chemical depot company. This will require the depot to have a special area for sorting,

classifying, and storing salvaged materiel. Materiel that can be used is picked up on stock record cards and placed in stock. Materiel that can be repaired or rebuilt is picked up on unserviceable stock record cards and sent to the chemical maintenance company serving the depot.

65. Stock Control

The objective of stock control is the management of supply operations so that effective distribution can be obtained with a minimum of supplies in the distribution system. Stock control objectives and procedures are discussed in FM 100-10 and AR 711-16.

66. Depot Operations Records

The records, registers, and files required to be maintained by the depot and the reports required to be made by the depot are prescribed by higher authority; these operational records normally include stock record cards, stock status reports, locator files, inventory records and reports, requisitions, ammunition inspection reports, surveillance records and reports, and other records and reports that might be made or maintained by the stock control or storage branches. Files of these and other documents are defined and disposition instructions are given in the AR 345-series. SR 780-40-1 lists the document files and control registers authorized for use by the depot stock control and storage branches.

67. Displacements of Supply Installations

Accurate stock control records are essential sources of information when displacement of a chemical supply installation is necessary. A running record of issues, receipts, dues-in, and dues-out for items on hand enables the depot commander to determine quickly and accurately what action must be taken. Economy in the use of labor and equipment is possible by adjusting the flow of supplies to the forward or retrograde displacement of the depot or supply point.

a. Forward Displacement.

- (1) When the supply line is going forward, a supply installation moves by sections. Thus, a depot sends forward an advance subdepot, which is opened for issue while the main depot moves up to the new site.
- (2) Supplies coming to the depot for storage rather than for immediate issue sometimes can be slowed down temporarily until the new site is opened; if not, they may be routed to the new location where an advance detail is organized to open the depot. In either case, every effort

is made to reduce stock in advance in order to permit movement of the depot with a maximum of effort and time.

b. Retrograde Displacement. The following fundamental rules are observed:

- (1) Movement of supplies and service units is not allowed to interfere with movement of combat units.
- (2) Forward movement of supplies is reduced to the minimum consistent with adequate supply of essential materiel to troops.
- (3) Supplies moved to the rear, augmented by additional supplies that must be brought forward, are dumped at successive positions in quantities adequate to serve troops in each position.
- (4) Supplies that must be abandoned are destroyed according to directions in applicable technical manuals.

68. Storage and Materials Handling

a. General. Information about storage procedures and materials handling principles is given in TM 743-200.

b. Storage and Handling of Chemical Agents and Dangerous Chemicals. Information about the storage, handling, and shipment of chemical agents and dangerous chemicals is given in TM 3-250. The use of chemical handling, loading, filling, and transfer equipment is covered in TM 3-255. Protective equipment to be used in handling chemical agents is listed in TM 3-250. Procedures are given in TM 3-220 for the decontamination of storage facilities, materials, and equipment contaminated as a result of leaky chemical agent containers or as a result of chemical agent filling and transfer operations.

69. Special Climatic Storage Problems

Tropical areas, deserts, and extremely cold climates present special problems for the storage of chemical supplies. These problems are discussed also in TM 3-250.

a. Tropical areas usually provide lush vegetation for easy concealment, but this advantage is offset by heat, humidity, and excessive rainfall. Supplies are normally stored in high positions and on dunnage to prevent their contact with water. To provide better air circulation, dunnage or pallets are used between layers of boxes when supplies are stacked. Depot installations are more compact in tropical areas than in temperate climates because concealment is good and because roads are difficult to build through the jungle.

b. Deserts provide little or no natural concealment; therefore, the best protection from enemy observation is camouflage and dispersion over a large area. Chemical ammunition, bulk chemicals, and chemical agents are affected by excessive heat and must be protected from direct rays of the sun by tarpaulins. Prevailing winds are highly important in determining location of a toxic gas yard, since particles of sand contaminated with liquid chemical agents can be carried a great distance during a sand storm. Factors in desert storage concealment include the following:

- (1) Many small, isolated stacks make unattractive bombing targets compared with a few big stacks close together.
- (2) In open areas, keep stacks low to avoid shadows. Stacks are covered with tarpaulins, and sand is placed on top.
- (3) Stone-littered areas are valuable; supplies may be grouped in low, irregular stacks, surrounded by and covered with artificial rocks made of heavy wire and covered with burlap and mud.

c. Arctic areas present difficult concealment problems; therefore, chemical depot areas are dispersed over a wide area in much the same manner as in desert installations. Supplies are kept off the ground by use of dunnage, and stacks are kept low. They are covered with canvas, but with sufficient clearance underneath to permit ventilation. Supplies affected by extreme cold are stored indoors or protected by Windfall. Snow is used for camouflage whenever possible.

70. Field Filling Procedures

Most chemical munitions are filled in the zone of interior, principal exceptions being airplane smoke tanks, fire bombs, flame throwers, and some chemical land mines. Air chemical munitions are normally filled by Air Force units, but chemical depot companies may be called upon to assist in these operations. Instructions for field filling of chemical munitions are given in TM's 3-250, 3-255, 3-300, and 3-376.

71. Shipment of Supplies

In theaters of operations, the theater commander will establish regulations governing shipment of supplies. General information concerning transportation logistics and military transportation is contained in FM's 100-10 and 101-10. Chemical supply personnel should be familiar with provisions governing the transportation of explosives, chemical materials, and other dangerous articles as published in TM 3-250 and AR's of the 55-series.

72. Inspection of Supplies

Several types of inspection may be performed by chemical depot personnel:

a. Daily inspection is made of all supplies at ammunition dumps, toxic gas yards, and warehouses or other storage points. This inspection is conducted to protect property.

b. Inspection of incoming supplies is made in order to determine shortages or damages when receiving a shipment.

c. Inspection to determine serviceability of supplies may be made with personnel of the chemical maintenance company.

CHAPTER 3

CHEMICAL DEPOT COMPANY (FIELD ARMY)

Section I. GENERAL

73. Mission

The mission of the chemical depot company (field army) (TOE 3-67) is:

- a.* To receive, classify, store, issue, and ship Chemical Corps munitions and equipment.
- b.* To fill munitions not normally filled in the zone of interior.

74. Assignment

The chemical depot company is assigned to army or independent corps and allocated on the basis of one company per army and one per corps or one per 100,000 troops. The company may be attached to headquarters and headquarters detachment, chemical service battalion.

75. Location

a. Army chemical depots, operated by chemical depot companies, are located in the field army service area of the combat zone. The locations are assigned by the logistical command in coordination with the appropriate chemical officer and in coordination with the commander of the chemical service battalion when the depot companies are attached to the battalion.

b. Two chemical class II and IV depots are normally located in the army service area. They are operated by one or more chemical depot companies, the number depending on the size of the army and on whether there is toxic or nontoxic warfare. A chemical maintenance company is usually located adjacent to a chemical class II and IV depot to provide maintenance of the depot's chemical equipment.

c. One chemical class V depot is normally established as part of each ordnance class V depot. It is located in the army service area, normally in proximity to the ordnance depot. It is operated by one or more chemical depot companies, the number depending on the size of the army and on whether there is toxic or nontoxic warfare.

76. Coordination With Other Units

Uninterrupted flow of chemical supplies to using troops can be maintained only through close coordination of the activities of all army service troops. Coordination is achieved in assigning storage space and in pooling labor, equipment, and transportation.

Basic principles governing the relations of the chemical depot company with other field army units are contained in FM's 100-10 and 101-10.

77. Capabilities

a. The unit is capable of supplying Chemical Corps munitions and equipment for 100,000 troops.

b. The capability of the unit for filling chemical landmines is given in FM 3-8.

c. Individuals can fight as infantrymen when required. The unit is capable of defending itself and its installations against hostile ground attack.

d. The unit has a mobility of 80 percent.

e. Personnel of the chemical depot company may be used to operate army chemical depots, supply points, or chemical sub-depots of general depots. Personnel of the chemical depot company or of the chemical company, combat support, may be attached to ordnance ammunition supply points for the purpose of issuing chemical class V supplies stored at the ordnance ammunition supply points.

Section II. ORGANIZATION AND FUNCTIONS

78. Organization

The chemical depot company (fig. 3) is composed of a company headquarters and three platoons, each of which is capable of operating separately.

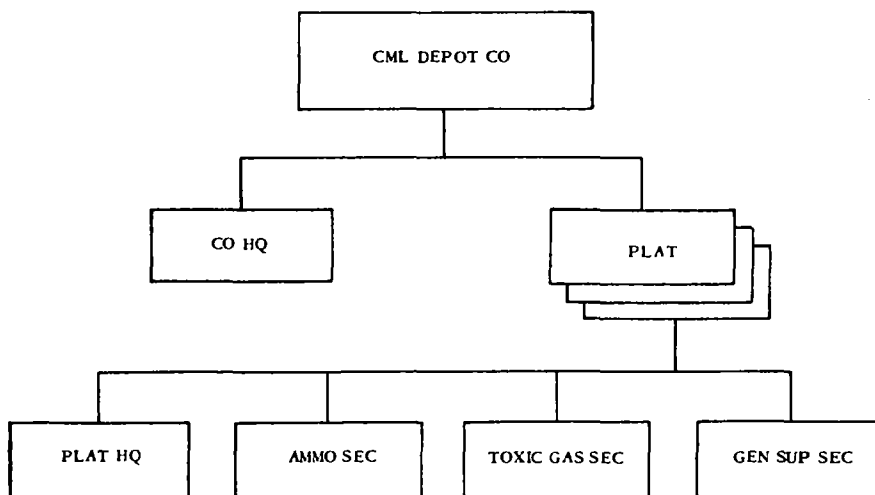


Figure 3. Organization of chemical depot company.

79. Company Headquarters

a. Organization. The composition of company headquarters is shown in TOE 3-67.

b. Functions. Functions of company headquarters personnel include command responsibilities; administration of company records and reports; supervision of depot operations, property, and administrative activities; and operation of company supply, mess, and motor pool activities.

80. Platoon

a. Organization. As shown in figure 3, the platoon consists of a platoon headquarters, an ammunition section, a toxic gas section, and a general supply section. The composition of the platoon headquarters and of the three sections is given in TOE 3-67.

b. Functions. Functions of platoon headquarters and of the three sections are given below:

- (1) *Platoon headquarters* functions include command responsibilities; supervision and coordination of activities of the three sections; supervision of chemical supply and warehousing activities; operating of stock record, packing, crating, and painting activities; and operation of the platoon's crane and motor vehicles.
- (2) *Ammunition section* functions include the storing and handling of chemical ammunition and munitions.
- (3) *Toxic gas section* functions include the storing and handling of 1-ton containers, 55-gallon drums, and other bulk containers of toxic agents; the filling of munitions with toxic agents from the large containers; and the filling of chemical landmines.
- (4) *General supply section* functions include the storing and handling of chemical supplies, repair parts, and materiel other than chemical ammunition and munitions and toxic agents.

81. Type B Organization

The chemical depot company is adaptable to a type B organization. The capabilities of a type B organization are the same as those of a full strength organization.

Section III. EQUIPMENT

82. General

A detailed list of organizational equipment of the chemical depot company is given in TOE 3-67.

83. Communications Equipment

Communications equipment consists of wire, wireman's equipment, telephone switchboard, and four telephones. The switchboard and one telephone are allotted to company headquarters. The other telephones are allotted on the basis of one for each of the three platoons.

84. Transportation Equipment

The chemical depot company is limited to the minimum number of motor vehicles required for company functions, including administration, liaison, reconnaissance, and supply. Company personnel and equipment may be moved from one location to another by shuttling the company's organic motor vehicles. Information is given in FM 3-8 about the requirements for additional motor vehicles for movement of the company at one time. The company is not provided with organic motor vehicles for movement of the depot stock. Requirements for this movement vary with the size of the depot and must be calculated separately.

85. Materials Handling Equipment

The materials handling equipment authorized the company for depot operations is, in general, similar to that of the chemical depot company, communications zone (par. 52). However, cranes, tractors, and various other items of materials handling equipment are lighter than those authorized the chemical depot company, communications zone. TOE items of equipment are air transportable.

Section IV. TRAINING

86. Training in Principles of Depot Operations and Storage

The training of army chemical depot company personnel in the principles of depot operations and storage is similar to the training of communications zone chemical depot company personnel discussed in paragraphs 53 and 54.

Section V. OPERATIONS

87. General

The basic principles pertaining to army chemical depot operations of a chemical depot company in the combat zone are, in general, similar to those pertaining to communications zone chemical depot operations of the chemical depot company, communications zone (pars. 58-72). Information in this section per-

taining to depot company operations is applicable to either a chemical depot or subdepot.

88. Factors in Selection of Site for Depot, Supply Installations, or Supply Activity

Factors for consideration in depot site selection apply generally to site selection for a subdepot, supply point, or other supply installation and activity. These factors are discussed in paragraph 56; however, those factors specifically applicable to an army chemical depot are discussed below.

a. Temporary Location. The site for the location of an army chemical depot should be considered as temporary because of changes in the tactical situation in the combat zone. This factor differs from that for a communications zone chemical depot, which should have a location that is as permanent as possible.

b. Isolation From Landmarks. Isolation of the depot from landmarks is necessary to prevent location by enemy observers. The depot should be well removed from definite landmarks shown on maps, such as villages, prominent crossroads, and stream junctions.

c. Natural Defense Positions. Natural defense positions provide the best security for the depot company and its installation. A river, swamp, steep cliff, or other natural defense obstacle is considered in the selection of a depot site.

d. Concealment and Camouflage. To prevent detection by the enemy, natural concealment, or suitability of an area for use of artificial camouflage materials, is a prerequisite in the selection of a site.

e. Covered Storage. In combat areas, covered storage usually is not available and must be improvised. Maximum use should be made of open storage.

f. Toxic Gas Area of Ordnance Ammunition Storage Area. When the toxic gas area is part of a consolidated ordnance ammunition area, the chemical depot company assumes responsibility for the toxic gas area.

89. Layout of Depot Areas

The principles of depot area layout for the army chemical depot are, in general, similar to those for the communications zone chemical depot (par. 57).

90. Preliminary Work at Company Site

The preliminary work at the site for the chemical depot company is, in general, similar to that for the chemical depot company, communications zone (par. 58).

91. Salvage Operations

a. General. Chemical depot company personnel should be familiar with the theater salvage system as prescribed in local directives. Procedures covering salvage operations in theaters of operations are covered in FM's, 9-6, 9-10, 10-10 and 100-10 and TM 10-260.

b. Functions. As the chemical maintenance company is charged with primary responsibility for chemical salvage, maintenance company personnel assist in battlefield recovery, collecting point activities, and salvage evacuation. Chemical depot company supply technicians often can be utilized to assist in these operations, particularly in segregating and classifying salvage at collecting points. Ammunition and toxic gas handlers may also be used in the conversion or disposal of chemical ammunition and other dangerous material. Use of chemical depot company personnel and equipment for salvage operations is coordinated by the chemical service battalion. Salvage work should not interfere with the depot company's primary supply or field filling functions.

CHAPTER 4

CHEMICAL MAINTENANCE COMPANY

Section I. GENERAL

92. Mission

The mission of the chemical maintenance company is to provide field and depot maintenance of Chemical Corps materiel.

93. Assignment

The chemical maintenance company is assigned to army, independent corps, or communication zone on the basis of one company per army and one per corps, or one per 100,000 troops in communications zone.

94. Capabilities

a. The chemical maintenance company is capable of performing field and depot maintenance on Chemical Corps equipment utilized by 100,000 troops.

b. Individuals can fight as infantrymen when required. The unit is capable of defending itself and its installations against hostile ground attack.

c. The unit has a mobility of 90 percent.

95. Coordination With Other Units

a. *Responsibility.* Coordination of company activities with those of other troop units is a function of command. The maintenance company or detachment commanders coordinate their unit functions as directed by the chemical service battalion or immediate commander. Liaison is a responsibility of the supporting unit. As a general rule, the company is used for maintenance support according to priorities determined by the tactical situation. Company responsibilities in regard to liaison with supported units, resupply for operational needs, and factors involved in its administrative and technical operations, are published in the standing operating procedures and administrative orders of the command to which the company is assigned. Chemical maintenance personnel should be familiar with the mission and capabilities of all units operating the maintenance, supply, and salvage systems in their area.

b. *Coordination With the Chemical Depot Company.* The chemical maintenance company closely coordinates its activities with those of the chemical depot company.

Section II. ORGANIZATION AND FUNCTIONS

96. Organization

The chemical maintenance company (fig. 4) is composed of a company headquarters, a gas mask repair platoon, and an equipment repair platoon. It is not adaptable to type B organization.

97. Functions

a. General. The company provides field and depot maintenance of Chemical Corps materiel by inspection, test, and classification as to serviceability, servicing, repair, rebuild, overhaul, and reclamation.

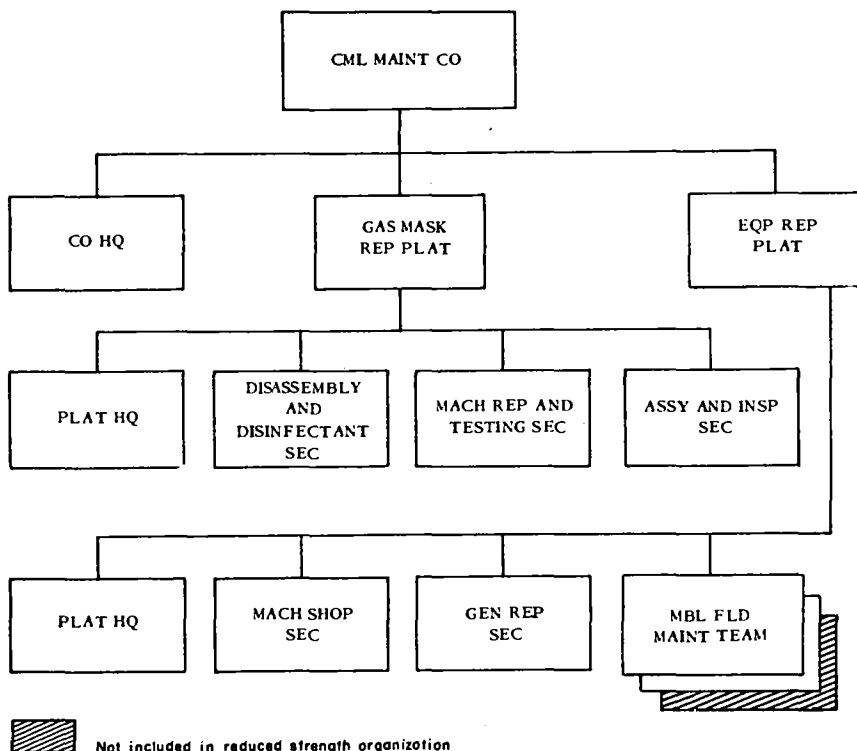


Figure 4. Organization of chemical maintenance company.

- (1) *Recovery.* The company may assist combat troops and other technical services units in the location, collection, sorting, segregation, classification, and evacuation of chemical salvage, as well as other activities involved in recovery.
- (2) *Modification.* Chemical Corps materiel is modified in the field in accordance with instructions in Department of the Army modification work orders. Modification, as

opposed to maintenance that restores the serviceability of an item, results in a change to the item.

- (3) *Manufacture.* This function may consist of construction of parts from raw materials or fabrication of sub-assemblies.
- (4) *Identification of captured equipment.* The company may be called upon to inspect and identify serviceable captured equipment of a chemical nature in the absence of chemical laboratory or chemical technical intelligence detachment personnel.

b. Functions of Maintenance Company in Field Army. Chemical maintenance companies assigned to a field army provide third echelon (direct support) maintenance to all troops in the army service area. They provide fourth echelon (general support) maintenance to troops in the army area.

- (1) *Combat periods.* During combat operations, immediate maintenance of damaged equipment is accomplished by replacement of parts or assemblies in order to return items to the user as quickly as possible and to minimize the quantity of items to be transported or destroyed when an advance or retrograde movement is directed. In offensive actions, close maintenance support is necessary for units using flamethrower materiel, mechanical smoke generators, and other combat chemical materiel. CBR warfare conditions require emphasis on maintenance and resupply of protective equipment. Recovery of chemical salvage is also of vital importance during or immediately following combat so that equipment may be returned promptly to supply and maintenance channels. Recovered materiel that is uneconomically repairable may be cannibalized in accordance with AR 750-50 and SB 3-38. Recovered materiel provides a source of critically needed repair parts in short supply. During a retrograde movement, the maintenance company is responsible for the evacuation or destruction of its equipment and supplies.
- (2) *Noncombat periods.* Following combat, the company can carry out more extensive projects such as major repair, rebuild, overhaul, or modification of equipment and reclamation of nonrepairable salvage, in addition to its normal operations. Opportunity is taken to inspect equipment in the hands of troops and to train equipment operators and unit personnel in maintenance procedures. Repair parts stock should be inventoried and action taken to replenish items below minimum levels. On a limited basis, manufacture of parts that cannot be furnished

through supply channels should be planned and initiated before shortages develop.

c. Functions of Maintenance Company in a Communications Zone. A chemical maintenance company assigned to a logistical command has a mission and capabilities similar to those of a field army unit, but its functions differ considerably. Its recovery function is limited except in a rapid forward displacement of the combat zone when advance section maintenance units take over the responsibilities of army units. Normally, communications zone chemical maintenance troops assist quartermaster salvage troops in routine salvage operations by systematic searching of areas and inspection and classification of salvage evacuated to collecting points. In their maintenance operations, companies located in rear areas may perform field and depot maintenance on chemical equipment beyond the capabilities of the forward direct and general support units. Maintenance shops in a base section may be charged with maintenance of equipment on a wholesale basis as a support function to a chemical or general depot. In rear areas, where facilities are available, more extensive manufacturing may be necessary to meet supply requirements. Fifth echelon (depot) maintenance may be performed by chemical maintenance companies in base logistical commands in time of peace—it is not performed in theaters of operation in time of war. Major end items will not be overhauled in time of war (AR 750-4).

d. Attachment of Maintenance Companies to ADLOG General Depots. In accordance with FM 54-1, chemical maintenance companies are attached to advance logistical command (ADLOG) general depots to provide field maintenance for chemical class II and IV equipment.

e. Maintenance as Source of Supply. Maintenance is an important source of supply. The maintenance float and direct exchange principles for repair parts and designated end items effect maximum maintenance support of units that use chemical equipment. Maintenance also reduces the quantitative requirements of stockage objectives for items of equipment.

98. Company Headquarters

a. Organization. The composition of company headquarters is shown in TOE 3-47.

b. Functions. Functions of company headquarters personnel include command responsibilities; administration of company records and reports; operation of company command post, motor pool, mess, supply, and maintenance activities; and supervision of the maintenance shop and technical maintenance operations.

99. Gas Mask Repair Platoon

The gas mask repair platoon (fig. 4) is composed of a platoon headquarters, a disassembly and disinfectant section, a machine repair and testing section, and an assembly and inspection section.

a. Gas Mask Repair Platoon Headquarters.

- (1) *Organization.* The composition of the platoon headquarters is given in TOE 3-47.
- (2) *Functions.* Functions of platoon headquarters personnel include command responsibilities, supervision of mask maintenance operations, planning work schedules, keeping the platoon's maintenance operations records, spreading the platoon's workload as uniformly as possible among the three sections, storing and issuing parts and supplies for mask maintenance operations, and operating the motor vehicles of platoon headquarters.

b. Disassembly and Disinfectant Section.

- (1) *Organization.* The composition of the disassembly and disinfectant section is shown in TOE 3-47.
- (2) *Functions.* Functions of the section include the cleaning and disinfecting of protective masks, inspection of incoming masks, and determination of the maintenance work and repair parts required.

c. Machine Repair and Testing Section.

- (1) *Organization.* The composition of the section is shown in TOE 3-47.
- (2) *Functions.* Functions of the section include operation of sewing machines for the repair of protective mask carriers; operation of eyepiece leakage indicators and other testing equipment; separation of repairable from nonrepairable items; supervision of test procedures; verification of the serviceable condition of items before they are passed on to the assembly and inspection section; and in-process inspections during repair operations to control quality of work performed.

d. Assembly and Inspection Section.

- (1) *Organization.* The composition of the section is shown in TOE 3-47.
- (2) *Functions.* Functions of the section include collecting components and assembling masks; finally inspecting assembled masks; packaging and packing masks; and inspecting the packaged and packed items.

100. Equipment Repair Platoon

The equipment repair platoon (fig. 4) is composed of a platoon headquarters, a machine shop section, a general repair section,

and three mobile field maintenance teams. When the company is at reduced strength, the number of mobile field maintenance teams is two.

a. Equipment Repair Platoon Headquarters.

- (1) *Organization.* The composition of the platoon headquarters is shown in TOE 3-47.
- (2) *Functions.* Functions of platoon headquarters personnel include supervising maintenance operations of Chemical Corps materiel other than protective masks, planning work schedules, keeping the platoon's maintenance records, storing and issuing parts and supplies for equipment maintenance operations, and operating the motor vehicles of platoon headquarters.

b. Machine Shop Section.

- (1) *Organization.* The composition of the machine shop section is shown in TOE 3-47.
- (2) *Functions.* Functions of the section include the machining and finishing operations required to support the maintenance unit's mission.

c. General Repair Section.

- (1) *Organization.* The composition of the general repair section is shown in TOE 3-47.
- (2) *Functions.* Functions of the section include repairing mechanical smoke generators, electric motors, electric generators, machinery, and engines that are components of Chemical Corps equipment such as power-driven decontaminating apparatuses and clothing impregnating plants; forging parts for use in repairing equipment; constructing boxes, crates, and other packing cases; welding; and painting.

d. Mobile Field Maintenance Teams.

- (1) *Organization.* The composition of each of the three mobile field maintenance teams shown in TOE 3-47 is identical.
- (2) *Functions.* Functions of the teams include repair equipment on site and rendering technical assistance to organizational maintenance shops, as required.

Section III. EQUIPMENT

101. General

A detailed list of organizational equipment of the chemical maintenance company is given in TOE 3-47.

102. Major Items of Equipment

a. *Chemical Corps Equipment Maintenance and Repair Set.* This set includes mask repair tools and jigs, hardware and electrical equipment, and a hydraulic pump.

b. *Truck-Mounted Machine Shop.* The mobile machine shop consists of equipment mounted in a 2½-ton, 6x6, van truck.

c. *Miscellaneous Equipment.* Miscellaneous equipment of the company includes a trailer-mounted welding shop, an air compressor, an electric generator, sewing machines, and tool kits.

Section IV. TRAINING

103. Purpose

The ultimate purpose in training the chemical maintenance company is to qualify the unit to provide effective chemical maintenance support. Regardless of assignment, every soldier must be taught that his primary duty is the obligation to fight. Training for the chemical maintenance company has an additional objective: Personnel must be qualified technical specialists who operate as a team to accomplish the company maintenance mission.

104. Continuing Function

The training of equipment operators and unit mechanics is a continuing function of the company. This training may be accomplished at the supported unit location or in schools conducted at the company shop. Training is concerned primarily with maintenance of flame throwers, smoke generators, decontaminating apparatuses, impregnating plants, and other chemical equipment. Maintenance training is important in preventing neglect and misuse of equipment so as to reduce the workload in field and depot maintenance shops.

Section V. OPERATIONS

105. Location

The chemical service battalion or immediate command, after coordination with the G4 and the chemical officer of army or corps or with the director of service of the logistical command, as may be appropriate, assigns a centralized location accessible to all supported units. Local reconnaissance by the company commander is of primary importance in selecting the exact site suitable for chemical maintenance operations.

a. *Forward Areas.* In the combat zone, companies are centrally located in the maintenance areas of supported units. At the company location are the maintenance shop, salvage yard, storage area, transportation pool, bivouac area, command post, and other ad-

ministrative facilities. Mobile field maintenance teams will be located with combat, combat support, or other units as necessary. Maintenance personnel who assist in recovery activities will normally utilize salvage collecting points as operating bases.

b. Rear Areas. In the communications zone, companies are located in the base section, near a chemical base depot or general depot, and, as required, in the advance section, near chemical depots on the axis of supply and evacuation.

106. Factors in Selection of Company Site

The company commander must constantly allow for the displacement of the maintenance shop to meet requirements of supported troops or lower echelon maintenance shops. When an area is allotted to the company commander, he selects the exact site for the maintenance shop and bivouac area. The company mission, which is to furnish chemical maintenance to supported units, is a prime factor in the selection of a site. Other factors for consideration include those discussed below.

a. Convenience. In order to minimize transportation needs and facilitate efficient operation, the company site must be carefully selected. Service must be provided with the least inconvenience to the troops being served. This service involves consideration of the disposition of the troops being supported, the road net available to supported troops, and the distance from the supported troops. Small displacements of the combat troops should not necessitate displacement of a shop.

b. Survey of Area. Survey of the area is conducted to determine the extent and degree of contamination resulting from prior CBR attacks, and standard CBR markers (FM 21-40) are placed to indicate area of hazard.

c. Cover and Concealment. These are necessary for protection of operating facilities and personnel. If the site is well forward, it should be in defilade and in a wooded area wherever possible. A site should not be selected near definite landmarks shown on maps.

d. Existing Buildings. These should be used when possible. When operating with a field army, the company customarily bivouacs and sets up shop in the open, utilizing the terrain to proper advantage. In instances where shop facilities and space are available in towns or villages, such facilities should be utilized to the greatest extent practicable. Use of them should be made after consideration of such factors as traffic congestion, parking space, cover for vehicles, proximity to areas likely to be bombed, and the rapidity with which the situation is changing. In rear areas existing buildings may be utilized to a much greater degree.

e. Terrain. A firm, high, well-drained, wooded area is desirable for shop operations. Gentle hillsides or sloping ground affords a better site than a level area, which may be turned into a bog by rain.

f. Additional Factors. These include accessibility to water, distance from the axis of supply and evacuation, room for expansion, and natural defense barriers. In choosing the site, the reconnaissance party should also select an alternate site so the company will have a place to move to if attacked and forced to evacuate.

107. Arrangement of Company Site

The company site should be arranged so that work can be efficiently performed by each section of the company. Although room for comfortable operations is necessary, the area should be kept as compact as possible.

a. Headquarters Area. The administrative sections should be located out of intershop traffic. The company mess should be located as near as possible to a source of potable water. The company supply should be located on a road convenient to all areas. A first-aid station should be centrally located. The bivouac area for the men should also be in this general vicinity.

b. Shop Area. The shop office should be located near the entrance to the shop area so that all incoming traffic would have to pass it. The road coming into the shop office should have a concealed approach of at least 100 meters for vehicles waiting to enter the shop area. The salvage area should also be near the shop area entrance. Traffic within the shop area should be one way. Concealment of the area is essential. Artificial camouflage will be necessary where there is little or no natural concealment.

c. Storage Area. Repaired equipment ready for return to using organizations or to depot stock is stored in locations where it can be picked up easily by unit trucks. This tends to relieve traffic congestion in the shop area.

108. Preliminary Work at Company Site

For information about preliminary work at company site, see paragraph 58.

109. Chemical Maintenance Responsibilities

In addition to providing field and depot maintenance, the chemical maintenance company provides maintenance of Chemical Corps materiel in the hands of troops when such maintenance is beyond the capabilities of the using units or when required by practical considerations.

a. Field Maintenance. Field maintenance tasks are indicated in

the maintenance allocation charts of equipment technical manuals. The tasks incorporate the third and fourth echelons.

(1) *Third echelon.* Third echelon maintenance is performed by the chemical maintenance company and its mobile teams and by the maintenance teams of the platoons of the chemical combat support company in close support of using troops. Third echelon maintenance may be performed by a using unit when specifically authorized by its TOE, the maintenance allocation chart, or by specific agreement between the commanders of the direct support (maintenance) unit and the using unit. Chemical maintenance units repair and replace specified subassemblies and assemblies.

(2) *Fourth echelon.* Fourth echelon maintenance performed by chemical maintenance units includes the repair of subassemblies, assemblies, and end items for return to stock, to units, or to maintenance float stock. Although location is not the determining factor, fourth echelon chemical maintenance is usually a function of chemical maintenance unit shops in the army service area and advance section of the communications zone.

b. *Depot (Fifth Echelon) Maintenance.* Depot (fifth echelon) maintenance includes the major overhaul or complete rebuild of parts, subassemblies, or end items. In theaters of operation during wartime, the complete rebuild of end items is not authorized, fifth echelon maintenance being limited to the rebuild of assemblies (AR 750-4).

110. Principles of Chemical Maintenance

a. *Maintenance Is Performed in the Most Advanced Echelon Possible.* Maintenance is performed as far forward as is consistent with the tactical situation, time available, capabilities of personnel, and availability of repair parts and tools. This saves transportation and puts equipment back into operation in the quickest possible time. No echelon, however, performs the work of a higher echelon to the neglect of its properly assigned functions.

b. *Mobility of Maintenance Facilities Is Necessary.* It is often more desirable to move chemical maintenance personnel to the equipment than to move the equipment to the personnel. For this purpose, contact repair service is established by mobile field maintenance teams, consisting of mechanics who are furnished with repair parts and special equipment. In addition to making repairs, these teams render all assistance possible through inspection and technical advice on all items of Chemical Corps equipment. It is normal for chemical maintenance units to give close contact service to supported troops.

c. Disposition of Maintenance Units Is Both Lateral and in Depth. Chemical maintenance units are disposed laterally and in depth to offer the best possible service to equipment being maintained. Maintenance units should remain sufficiently near units being served to give close contact support, with due consideration to the tactical situation, terrain, road net, cover, and concealment. When practicable, chemical maintenance units support the same tactical units throughout an operation. This improves liaison, understanding, and cooperation between supporting and supported units.

d. Unnecessary Movement of Depot Maintenance Units Is Avoided. Depot maintenance shops should remain in operation in the same locality as long as is practicable without sacrificing service to supported units. In general, depot maintenance units should be leapfrogged as the using units move forward to enable each shop to complete the work on hand.

e. Repaired Equipment Is Returned to User or Placed in Supply Channels. Repaired equipment is either returned to the unit from which it was received, or placed in the supply channel for reissue.

f. Adequate Supply Is Necessary for Adequate Maintenance. An adequate supply of repair parts must be available for the chemical maintenance system to operate at maximum efficiency. Each maintenance unit is authorized a supply of repair parts as required to accomplish its mission. Replacement of repair parts is normally accomplished through supply channels to direct support units and through maintenance channels to organizational maintenance shops. A maintenance unit is never satellited on another maintenance unit for repair parts supply.

111. Recovery

Recovery is a process that involves the location, collection, and removal of disabled and abandoned materiel (of both enemy and friendly troops) that can be used for the original purpose, either with or without repair; converted to a substitute use; or utilized as scrap. All recovered materiel remains in a salvage category until inspected and classified otherwise.

a. General. Chemical salvage is inspected, sorted, segregated, and classified at locations where found or at collecting points. Serviceable items are returned to supply points for use or redistribution. Unserviceable items that can be repaired are evacuated to the appropriate chemical maintenance shop for repair and return to user or to local stock. Major items and components not repairable may be held for cannibalization in accordance with AR 750-50 and SB 3-38. Items and assemblies that are not repairable within the resources of field shops, but which can be re-

paired, rebuilt, or reclaimed in base shops, are evacuated to the communications zone. Captured enemy equipment is handled in the same way, except that samples of new equipment are immediately turned over to chemical technical intelligence. Materiel that has been classified as scrap (items that have no value except for their basic material content) is turned over to the quartermaster salvage officer at collecting points. As soon as property is determined to be serviceable without repair or unserviceable but repairable, it is so designated and removed from the salvage category.

b. References. Chemical maintenance personnel should be familiar with the general policies provided in FM 100-10 concerning recovery and salvage. Since the bulk of recovered materiel is processed by the salvage service, FM 10-10 and TM 10-260 should be consulted for information on Quartermaster Corps responsibilities. Certain types of salvage, such as vehicles, weapons, and ammunition, are recovered through ordnance channels according to procedures contained in FM's 9-1, 9-6, and 9-10.

112. Modification

A modification is a major or minor change in the design or assembly of an adopted-type item of materiel. Modifications are accomplished according to instructions published as Department of the Army modification work orders. At times modifications may be required within a theater to meet unusual climatic conditions such as extreme cold or high humidity. Modifications that will affect the working parts of materiel will not be made without the prior approval of the responsible developing agency except that modifications which are vital to safety or essential to operations may be made within an oversea command or by a separate task force with the approval of the commander of the oversea command or task force. The responsible developing agency will be informed of such modifications at the earliest practicable date.

a. Purpose. Materiel may be modified for any one of a variety of reasons: to increase the safety of personnel, to reduce excessive maintenance, to increase combat or operating effectiveness, or to facilitate production.

b. System of Classification. Modification work orders are classified as either urgent or normal.

- (1) *Urgent.* This classification requires that the modification be accomplished on all items in the field immediately and on items in depot stock prior to their being issued. Exceptions in application are clearly described in the modification work order. Periodic progress reports may be required by the chief of the responsible developing agency.

- (2) *Normal*. This classification requires that modification be accomplished as soon as practicable within current resources and the time limit if prescribed in the MWO. Storage items that are already processed and packaged are not affected unless it is specifically directed that these be modified within a specified time or prior to issue.

c. *Enemy Materiel*. Prior to use, these items may be modified by the same general procedures provided for United States Army materiel. Modification work orders for captured enemy materiel may be identified by the letter "E" in parentheses suffixed to the order number.

113. Manufacture

Normal field operations do not require manufacturing as a function of the company. However, when a shortage of repair parts develops, construction of parts from raw materials or fabrication of subassemblies or complete items may be necessary. Fabrication is possible when parts are standardized and interchangeable. Adverse weather conditions and other contingencies may have a pronounced effect on the replacement rate of repair parts, so that unexpected shortages develop in spite of careful planning. The ability of maintenance personnel in manufacturing operations is often an important factor in permitting continued operation of equipment. During World War II, because of the shortage of repair parts overseas, most maintenance companies were continually manufacturing repair parts in order to carry out their missions. However, if the proper stock level of repair parts is maintained and distribution carried out efficiently, manufacturing will be of limited importance.

114. Chemical Maintenance Shop Procedures

a. *General*. The organization of chemical maintenance in the field is generally based on the principle of progressive increase in available maintenance facilities from front to rear. The chemical maintenance shops established at each echelon are designed to carry the normal maintenance load of that echelon and provide support to subordinate echelons. Since echelons of maintenance will overlap, it is essential that basic shop procedures be identical. In addition, such uniformity permits the assignment of units from the logistical command to the field army without difficulty. These basic procedures provide for close liaison by maintenance shops with supported units or other shops in lower maintenance echelons and further provide uniform methods of receiving, processing, and disposing of materiel in order to return it to the using organization or to supply channels as promptly as possible.

- (1) In forward areas the bulk of unserviceable items received will be from using organizations. Chemical supply points or depots will turn in proportionately smaller quantities. These items are repaired and returned to user or local stock. Usually only critically needed repairable items are evacuated from salvage collecting points to shops in forward areas. Serviceable items are evacuated directly to supply points, and nonrepairable, but reclaimable, items and scrap are continued in salvage channels to a higher maintenance echelon. In rear areas the sources of unserviceable materiel would be considerably different, the bulk of the unserviceable items being received from salvage channels or chemical depots with only small quantities from local troop units.
- (2) Whenever it is possible, unserviceable materiel is transported to the chemical field maintenance shop by the supported troops. Chemical depot troops, using their organizational vehicles, turn in unserviceable items. The vehicles are then reloaded with repaired items for return to supply channels. Salvage and recovery troops will normally evacuate repairable items to field shops. The chemical field maintenance mobile repair teams may evacuate small quantities of damaged items in connection with their contact repair activities. Chemical maintenance units turn in scrap materials to quartermaster salvage dumps.

b. Decontamination of Materiel. Under CBR warfare conditions, all materiel received at the field shop is tested to determine possible contamination. Although materiel turned in by using organizations and salvage found by recovering troops are decontaminated prior to evacuation, the possibility of further contamination during evacuation must be considered. When necessary, the assistance of a chemical decontaminating unit is requested. Once the materiel is decontaminated, it may be processed in the same manner as any other item. Lack of necessary precaution in testing and decontaminating equipment is likely to result in casualties and consequent disruption of maintenance operations. Field decontaminating procedures are covered in TM 3-220.

115. Procedures for Processing Materiel

When materiel is received at the shop from any source, it is inspected, classified, and scheduled for maintenance as necessary. General policies established by the company commander will provide for the accomplishment of all routine work without specific authorization. In special cases involving major repair, rebuild, or

reclamation of equipment, approval must be obtained prior to starting a project to prevent the processing of materiel that should be evacuated to a supporting maintenance echelon. Following authorization of work, a job priority is assigned according to tactical requirements. The equipment in question then goes to the maintenance shop where the work is to be done. Each job will be accomplished according to the production schedule maintained by the shop office. This will permit coordination in the use of labor and equipment and the maintenance of a balanced workload. If circumstances prevent the use of standard forms, the shop office will prepare the necessary forms. No request for maintenance in forward areas is denied on the basis of improperly prepared forms or the lack of forms. The following procedures are suggested for processing unserviceable materiel received by a field maintenance shop.

a. *Receipts From Units or Depots.* Unserviceable materiel of supported units or depots is turned in with three copies of work request and job order and one copy of the work request and hand receipt. The materiel is processed on a hand-receipt basis by the job order method. Upon completion of the work, the unit or depot is furnished the first copy of the job order and inspection report. The second copy of the job order, together with its supporting documents, is placed in the dead file. The third copy of the job order is placed in the organization services record. If materiel cannot be repaired in sufficient time or if it must be evacuated or disposed of for other reasons, it is transferred to the unserviceable property account, and the unit or depot is furnished the first copy of the job order for replacement purposes. Repair parts and operating supplies expended during maintenance operations are posted to the shop expenditure record.

b. *Receipts From Recovery Services.* Unserviceable materiel received from collecting points and other recovery sources is tallied in and recorded in the unserviceable property account. Materiel that can be repaired, rebuilt, or reclaimed is processed through the job order system. Credit is taken in unserviceable property records on the basis of vouchers showing property disposition, for example, evacuation to a higher maintenance echelon, return to stock, or turn-in to a salvage dump.

116. Planning Shop Operations

Prior to the receipt of equipment to be repaired at a chemical maintenance shop, work should be planned so that items will be processed in a continual, orderly fashion without delays. Every effort should be made to predetermine the need for repair parts and other operating supplies and to have them available when

needed. The nature of the repairs and other maintenance required should be analyzed, and a definite type of operation adopted.

117. Types of Maintenance Operations

Normally, there are two types of operations that can be employed for maintenance of Chemical Corps materiel—the *production line* type and the *job* type. The selection of the type of operations to be employed in any given shop is dependent upon the category and quantity of materiel to be maintained, the facilities available, the location of the shop, and the tactical situation.

a. Production Line Maintenance. This type of maintenance is the processing of a quantity of similar items by the performance of like operations to all items. The maintenance required is broken down into groups of repetitive operations that can be performed in a definite sequence at specific stations. The materiel, in moving from one station to the next, is disassembled, inspected, tested, classified, and either serviced, repaired, rebuilt, or reclaimed in progressive steps. Special tools or equipment is used when needed to expedite operations. Repair parts used in individual maintenance operations are accumulated at the proper station within easy access of repairmen. Written work orders cover the entire group of materiel or lot of items to be processed during a specified period. Since maximum effectiveness of production line type of operations is realized only by the processing of large quantities of similar items, it is not practicable to employ this method unless sufficient quantities are available for a "run" of stipulated duration. The preparation of the line for proposed runs necessitates gathering required tools, test equipment, and repair parts and training personnel for operations peculiar to the materiel to be processed. Therefore, the quantity of the production run must be sufficiently large to justify the increased preparation time. In scheduling the run, careful advance planning is required to secure maximum utilization of personnel and equipment and to insure a steady, continuous flow of work so that delays and interruptions at any one station will not disrupt the entire line. This type of maintenance operation may be profitably utilized wherever it is of value in the processing of items.

b. Job Maintenance. This type of operation is the individual processing of items. A spot check or technical inspection of the materiel to be repaired is initially made to determine the nature of unserviceability. This inspection may include a performance test, if necessary. The work order can then be written and the required maintenance performed as directed. The identity of the item is retained during the course of repairs or other maintenance operations, since the work is being performed on the individual item

rather than by reassembling a complete serviceable item from interchangeable parts. Job maintenance is used when sufficient quantities of similar items are not available to make a production run practicable or when repetitive operations cannot be established. However, the procedures for production line operations, such as routing materiel through designated stations or shop sections for the purpose of performing related and recurring operations and using trained specialists to perform specific operations, should be utilized as much as possible in job operations.

118. Working Practices

Working practices stressing safety and efficiency must be established in shop operations. For example, working areas should be kept orderly and free of excess supplies and accumulations of refuse. Completed work and scrap should be removed regularly. Adequate tools and equipment should be made available to repairmen. Skilled mechanics and equipment operators performing routine jobs should be assisted by helpers to conserve the time of the skilled specialist. Action should be taken to keep skilled workers supplied with work to avoid loss of productive man-hours. Technical publications and data should be easily available to insure standard practices. Shop safety should be stressed in all operations. In short, every effort should be made to provide the best possible working conditions so that the highest production can be attained.

119. Maintenance Shop Supply

Maintenance shop supply includes the requisitioning, receipt, storage, and issue of repair parts and other operating supplies. The scope of maintenance shop supply depends on the volume and variety of work in each maintenance echelon. Resupply of repair parts is made through the normal supply and maintenance systems. The initial load of repair parts for each unit is prescribed by higher authority. Stock levels to be maintained are also prescribed by higher authority but are adjusted by the usage experience of each shop. The company commander will continually analyze usage data so that repair parts requirements will be based on actual needs. Effective shop supply is largely dependent on early determination of needs and the preparation of accurate and timely requisitions. Direct exchange stock will be established under the provisions of AR's 730-30 and 735-35. Maintenance float stocks will be established in accordance with SB 3-34.

120. Maintenance Shop Files

The shop office maintains all files of records pertaining to the technical service mission. Record disposition schedules are pre-

pared in accordance with instructions contained in the AR 345-series to insure proper control and disposition of records. Simple and complete records are required to eliminate guesswork in shop operations and to establish reliable systematic sources of information for reports made to higher headquarters. The retained copy of all reports is filed with other record materials. The principal records required for chemical maintenance operations include the following:

a. *Shop Expenditure Record.* This record consists of one stock record card for each repair parts item or material type used in chemical maintenance. The requisition, job order, inventory adjustment, and other files of supporting documents are all designed to insure the accuracy of this record.

b. *Unserviceable Property Record.* This record consists of one stock record card for each type unserviceable item received at the shop. This record may be required for all or for only special categories of unserviceable materiel. Credit is taken in unserviceable property records on the basis of documents showing proper disposition, such as return to user or to local stock, evacuation to the next higher maintenance echelon for repair and return through supply channels, and receipt from salvage officers.

c. *Job Order File.* This file consists of a job order register and a current and a dead file of job orders. The completed job order when placed in the dead file contains appropriate copies of the work request and job orders, parts requisitions, inspection reports, and other documents used for the job.

d. *Organization Record of Services.* This record consists of a jacket file or files containing appropriate copies of work requests and job orders, inspection reports, record of modification work orders, and other documents concerning maintenance of equipment for each organization supported by the shop. On the outside of the jacket file envelope are listed the unit designation, the names of the unit commanding officer and maintenance officer, and a calendar of spot check and technical inspections. When responsibility for maintenance support is transferred to another chemical maintenance unit, this record is turned over at the same time.

e. *Operations Record.* Each shop, or shop section, submits a report to the shop office at prescribed intervals to indicate progress in assigned work. Essential information includes backlog, receipts, completions, and other data affecting processing of materiel. These data may be recorded on a graphical record of operations using charts so that a current visual representation of the mission is available for company, battalion, and group commanders.

f. *Inspection Records.* These records consist of reports made of inspection of materiel or organizations. The authority that orders

an inspection also specifies the type of inspection report required. The ideal form has special spaces for all essential data and additional space for remarks by the inspector.

g. Blank Forms. To insure uniformity and standard procedures, blank forms included in DA Pam 310-2 are used whenever possible in chemical maintenance.

h. Miscellaneous Records. Other records maintained by the shop office include retained copies of reports such as report of parts consumed; status of modification work orders; and reports concerned with supply, recovery, evacuation, and similar functions related to maintenance operations. The shop office files all correspondence concerned with the maintenance mission and maintains copies of all Department of the Army publications and local directives that provide instructions for maintenance policy and procedures.

121. Contact Repair Procedures

Contact repair is repair of equipment in close support of using troops at the location of the damaged item. It also includes inspection, preventive maintenance, training, technical advice, liaison, and all other assistance possible by specialists sent out by a chemical field shop. This service is provided by contact parties as part of shop operations. The basic unit of the contact party is the mobile field maintenance team to which may be added gas mask repairmen or other specialists as required. There are, in general, two types of contact parties: special and general.

a. Special. This contact party is organized with the necessary personnel and furnished equipment to accomplish a definite maintenance operation. It proceeds directly to the reported location, completes the maintenance as quickly as possible, and returns to the shop.

b. General. This contact party is composed of an all-purpose maintenance team, carries a balanced stock of operating supplies, and is organized to provide chemical maintenance support as the need arises. This party may operate on a schedule or be attached to supported units, returning to the shop to replenish stock or when critically needed items require evacuation for repair. A primary responsibility of this party is preventive maintenance. Unit equipment is inspected; actual or potential defects are noted and corrected before a major maintenance operation is required. These activities are a major factor in reducing or eliminating the period of time during which equipment is in the shop and not available to combat troops.

122. Disposition of Materiel

At any given time at a chemical maintenance shop, there are various categories of unserviceable materiel that require final disposition. These categories include repaired items, excess items, and captured enemy materiel.

a. Repaired Items. In returning items turned in for maintenance by using units or chemical depots, these organizations are notified as soon as the time of release for the equipment has been determined. Subsequently, the organization will be repeatedly notified until it removes the equipment. Repaired items originally received as salvage are normally returned to local supply channels.

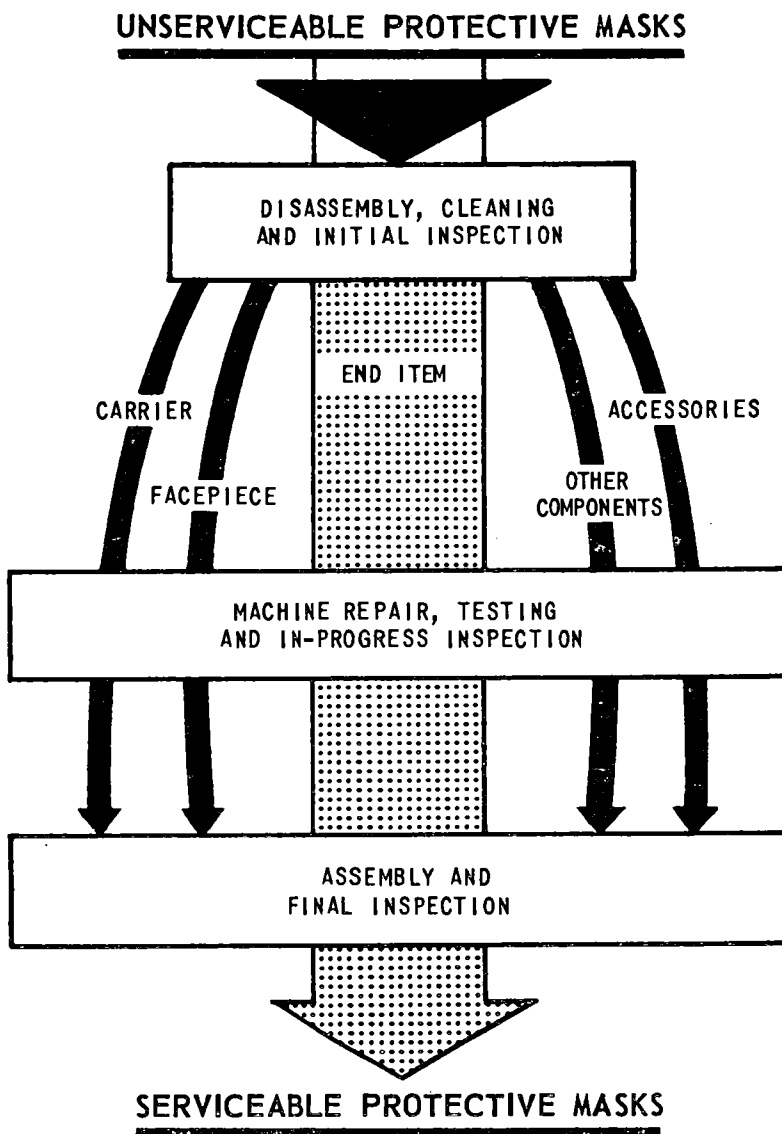
b. Excess. Field shops in forward areas frequently recover or receive unserviceable materiel in quantities that exceed their capacity for maintenance. Repairable and nonrepairable, but reclaimable, excess is reported to the supporting maintenance echelon for disposition and evacuation through salvage or maintenance channels. Excess scrap is turned in to the nearest quartermaster salvage dump.

c. Enemy Materiel. Captured enemy chemical materiel that is usable when received through recovery channels or that may be repaired, modified, or converted to meet supply requirements is often a vital factor in overcoming critical supply shortages. Except as required for intelligence purposes, captured enemy chemical materiel is handled in the same manner as our own. Quantities that exceed local supply requirements are reported to higher headquarters for final disposition. So far as is practicable, maintenance company personnel should have a thorough knowledge of the identification, function, and maintenance of enemy materiel so that they can process it quickly and turn it in to supply channels.

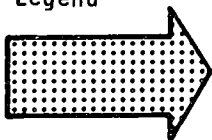
123. Protective Mask Maintenance Operations

A suggested layout of mask production line maintenance operations is illustrated in figure 5. The layout includes three maintenance shop stations: disassembly, cleaning, and initial inspection station; machine repair, testing, and in-progress inspection station; and assembly and final inspection station. The stations correspond to the three sections of the gas mask repair platoon. Since inspector-testers are provided in each section, inspection may be a continuing process throughout the maintenance operations. As production line "bottlenecks" may develop in spite of careful planning, transfer of personnel from one station to another may be necessary.

a. Inspection, Disassembly, and Cleaning. After unserviceable protective masks are received at the maintenance shop they are



Legend



End item processed
as complete unit.



Components and accessories
separated for processing.

Figure 5. Production line maintenance of protective masks.

decontaminated, if necessary, and sorted into types. The masks are then inspected, disassembled, and cleaned. The initial inspection should be positive, specific, and thorough since the completeness of repairs will be determined by its findings. The initial inspection determines not only the condition of the masks but also the maintenance or disposition required. It also serves as a basis for predetermining and requisitioning necessary parts and for scheduling and preplanning work. Upon completion of testing, serviceable mask components and accessories are forwarded for use in the final assembly process, unserviceable but repairable or rebuildable items are turned over to repairmen, and nonrepairable items are disassembled for reclaimable parts. In a shop inspection, masks are first disassembled into components. Mask accessories are removed. During disassembly, masks are cleaned in accordance with the procedures prescribed in TM 3-522-15.

b. Repair and Final Assembly Inspection. Mask components are repaired, tested, and assembled, and the final assembly, including accessories, is inspected in accordance with the procedures described in TM 3-522-15.

124. Reclamation of Masks

Salvaged masks that are nonrepairable, but reclaimable, are normally evacuated to a chemical maintenance shop in a rear area where better facilities are available for large-scale reclamation activities. Obsolescence of a mask type may also require reclamation of components that are interchangeable and can be used in standard types. Reclamation can be an important factor in meeting requirements for repair parts.

125. Maintenance of Chemical Corps Equipment Other Than Masks

a. Scope. Maintenance of Chemical Corps equipment other than protective masks is a responsibility of the equipment repair platoon. This equipment includes portable and mechanized flame-throwers, mechanical smoke generators, hand-operated and power-driven decontaminating apparatuses, collective protectors (filter units), air compressors, impregnating plants, chemical ammunition, protective devices, field filling apparatuses, and materials handling equipment. The platoon personnel may inspect chemical ammunition and assist in minor reconditioning activities by removal of corrosion and other operations incident to repackaging. However, renovation of ammunition is a responsibility of qualified chemical depot personnel. Equipment repair personnel must be qualified in the operation of the equipment for which they have maintenance responsibility in order to properly examine it and

conduct the performance tests required in shop inspections. Servicing, repair, and other maintenance of chemical weapons and materiel are usually accomplished by job-type operations. However, production line operations may be possible if a large number of similar items are to be processed or if the equipment is vehicle-mounted items, such as power-driven decontaminating apparatuses. Repairmen should be thoroughly trained in demilitarization of all chemical materiel required in reclamation activities or materiel subject to capture or abandonment in the combat zone.

b. Layout of Equipment Maintenance Area. An equipment maintenance area should provide a central location, near equipment repair platoon headquarters, for the storage and issue of repair parts and common tools. Welding, painting, and carpentry shops are established in this general area. Machine shop repair trucks can be moved to various repair locations as needed. The general repair section can be subdivided into flamethrower, smoke generator, and other units as necessary. Heavy equipment is usually worked on in place rather than processed through a series of maintenance stations. Since the equipment repair platoon is limited to one maintenance tent, operations are conducted in the open unless existing buildings can be utilized.

c. Equipment Maintenance Procedures. Equipment repair and other related maintenance operations represent hard, tedious work requiring thorough training and skill. The platoon sergeant must select crews with care to insure that they will be able to work together. The company commander should provide standing operating procedures covering all routine operations. Unforeseen needs, inadequate equipment for certain types of work, and shortages of supplies require that chemical maintenance officers and technicians exercise great ingenuity in improvisation and field expedients to solve the problems at hand. An important factor in field operations involving the maintenance of equipment is replacement of new for worn or damaged assemblies whenever this will conserve time. The replaced item is repaired when time permits or is evacuated to a higher maintenance echelon. It is neither practicable nor desirable to determine in advance the solutions to all possible problems of equipment maintenance. Intelligent and satisfactory solutions are dependent upon the training, efficiency, initiative, and common sense of maintenance personnel, and their ability to adapt themselves to constantly changing situations. Technical instructions for accomplishing field and depot maintenance of Chemical Corps equipment are published in technical manuals and technical bulletins of the 3-series.

126. Communications

Company headquarters is provided telephone equipment, and connections are made to the chemical service battalion or immediate command headquarters. Panel sets are issued to vehicles and units of the company for identification by friendly aircraft. Messenger communication is used between platoons and company headquarters. Contact with detachments in forward areas is made through the army communications net. (Information on signal operations in the corps and army is provided in FM 11-22.) In base operations, the company may frequently be able to utilize a local telephone system that has been connected with the military telephone system by the Signal Corps.

127. Transportation

The chemical maintenance company is limited to the minimum number of motor vehicles required for company administration, liaison, reconnaissance, recovery, evacuation, supply, and maintenance operations. For field operations most of the general purpose $2\frac{1}{2}$ -ton trucks are used in recovery and evacuation of salvage, return of repaired equipment to chemical supply points, and transportation of repair parts required in operations. The $\frac{3}{4}$ -ton trucks are assigned to the mobile field maintenance teams for contact repair operations. The $\frac{1}{4}$ -ton truck is used by company headquarters for administrative duties. The machine shop repair trucks are special purpose vehicles that provide mobile maintenance facilities for the equipment repair platoon. Drivers are detailed from the particular headquarters to which the vehicles are assigned. The company may be moved from one location to another by shuttling its organic motor vehicles. For information as to additional vehicles for movement of the unit at one time, see FM 3-8.

128. Covered Space Requirements

Covered space requirements of the unit total approximately 425 square meters of floor space.

CHAPTER 5

CHEMICAL DECONTAMINATION COMPANY

Section I. GENERAL

129. Mission

a. Primary Mission. The primary mission of the chemical decontamination company (TOE 3-217) is third echelon decontamination of vital areas, installations, and large quantities of materials.

b. Secondary Mission. The secondary mission of the company is to screen service and army rear areas by the use of smoke.

130. Assignment

The chemical decontamination company is assigned to a communications zone on the basis of two companies per army supported or one company per 200,000 troops in the communications zone. The company may be attached to the headquarters and headquarters detachment, chemical service battalion.

131. Location

Chemical decontamination companies are normally located in the communications zone.

132. Capabilities

a. The unit is capable of providing CBR warfare decontaminating service for approximately 100,000 troops.

b. The unit is adaptable for fire fighting and for providing mobile shower service.

c. For medical and religious support, the unit is attached to or is dependent upon other units.

d. Individuals can fight as infantrymen when required. The unit is capable of defending itself and its installations against hostile ground attack.

e. The unit has a mobility of 100 percent.

133. Coordination With Other Units

Responsibility for coordinating the work of the decontamination company with that of other units rests with the chemical officer of the command to which the company is assigned, is attached, or supports. The company may be used to assist any unit in decontamination work when the chemical officer believes that such employment is justified.

Section II. ORGANIZATION AND FUNCTIONS

134. Organization

The chemical decontamination company (fig. 6) is composed of a company headquarters and three platoons.

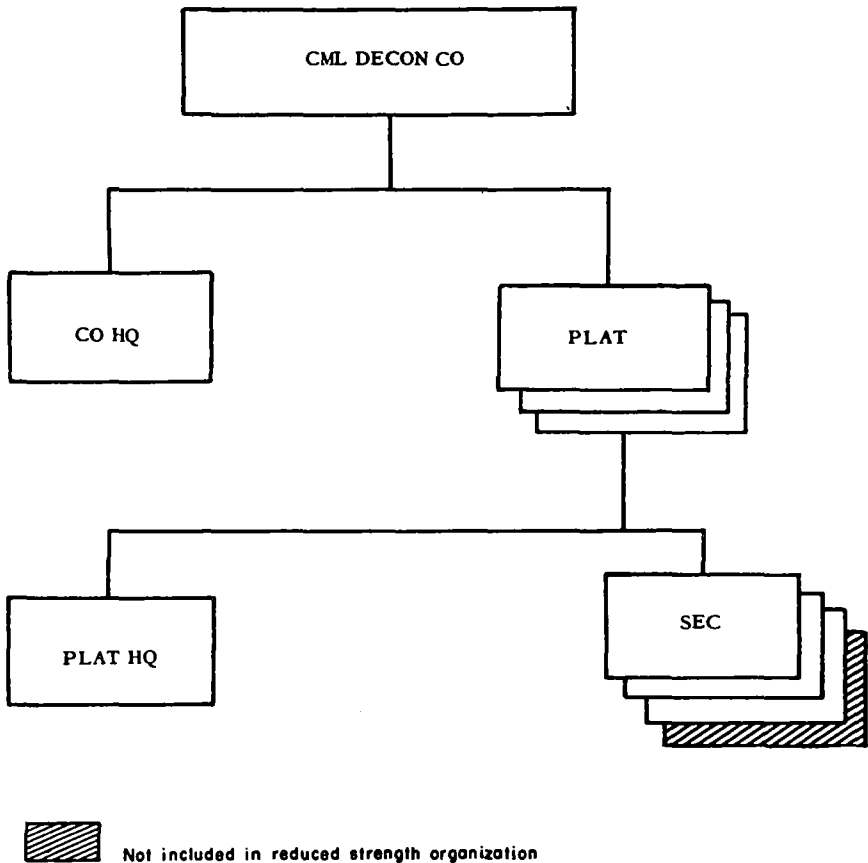


Figure 6. Organization of chemical decontamination company.

135. Company Headquarters

a. *Organization.* The composition of company headquarters is shown in TOE 3-217.

b. *Functions.* Functions of company headquarters personnel include command responsibilities, company records and reports administration, supply and mess activities, decontaminating apparatus pump repair, and motor vehicle maintenance.

136. Chemical Decontamination Platoon

a. *General.* The company has three platoons, each of which is capable of operating separately. Each platoon (fig. 6) consists of

a platoon headquarters and four sections. When the company is organized at reduced strength, each of the three platoons has three sections.

b. Platoon Headquarters.

- (1) *Organization.* The composition of platoon headquarters is shown in TOE 3-217.
- (2) *Functions.* Functions of platoon headquarters personnel include command responsibilities, supervision of the platoon's decontamination operations, operation of decontaminating apparatus pumps, and handling of decontaminating materials.

c. Section.

- (1) *Organization.* The composition of a chemical decontamination section is shown in TOE 3-217.
- (2) *Functions.* Functions of section personnel include supervision of decontaminating equipment operations, operation of decontaminating apparatus, loading of decontaminating apparatus with decontaminating materials, and operation of the decontaminating apparatus spray equipment.

137. Type B Organization

The chemical decontamination company is adaptable to a type B organization. The capabilities of a type B organization are the same as those of a full strength organization.

138. Modification in Organization

a. General. Widely dispersed operations may require modification of the chemical decontamination company organization by the company commander or higher authority. The consideration of such modification should include the basic requirement that all platoons are operating platoons and will be so employed.

b. Administrative Details. Normally, when general housekeeping activities at the company headquarters require assistance from personnel of the operating platoons, this assistance can be accomplished on a roster basis. Any modification in organization to provide for housekeeping or other administrative duties must not interfere with the accomplishment of the assigned mission.

c. Operational Details.

- (1) *Power-driven decontaminating apparatus* (fig. 7). Under some conditions it may be found necessary to provide for a station detail in order to receive and prepare materials to facilitate operations of the platoons and sections that are actively engaged in decontamination operations. Each section has two men who normally act as a station

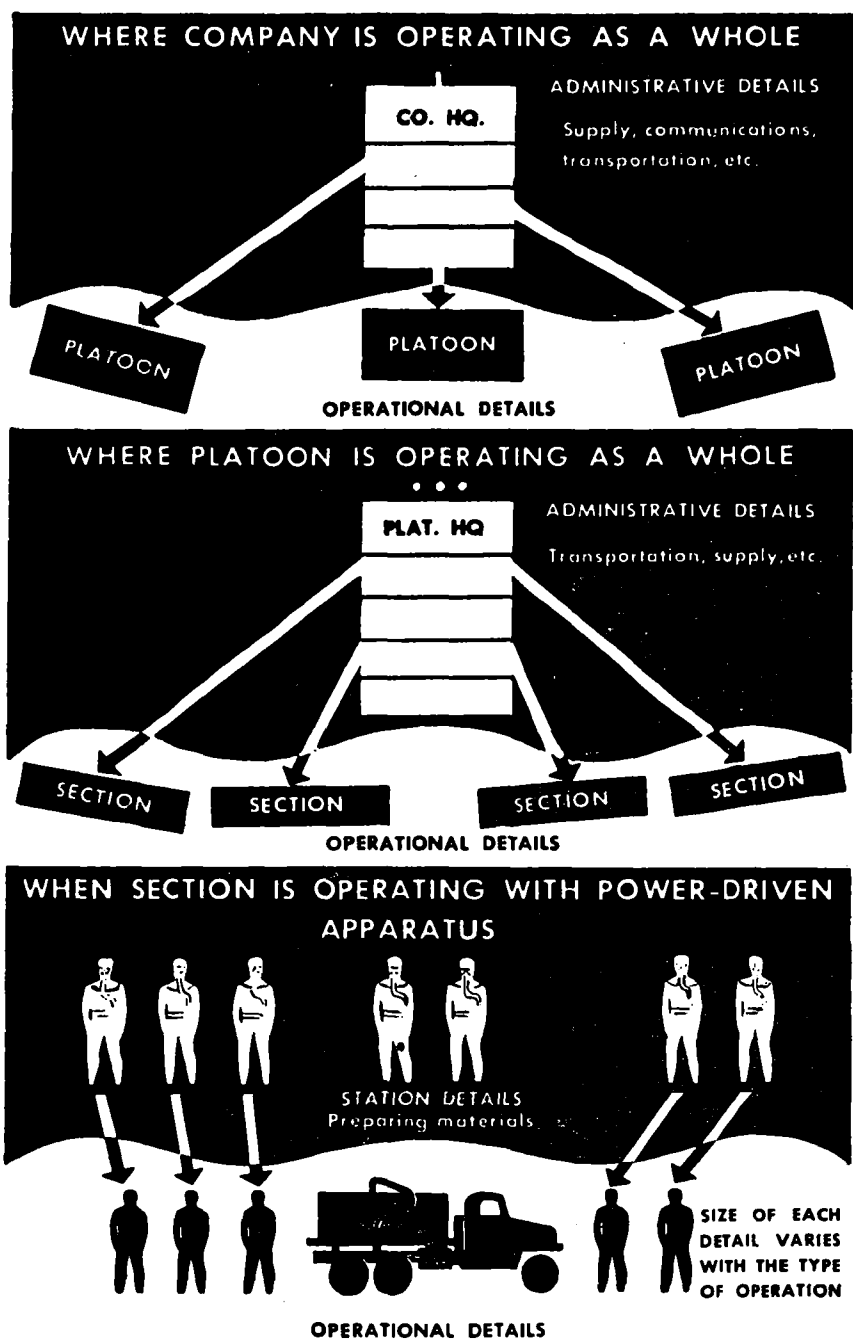


Figure 7. Organization of decontamination units using power-driven apparatus.

detail when the section is operating with the power-driven decontaminating apparatus. Five men are sufficient to actually operate the power-driven apparatus for each section. The platoon commander may find it desirable to consolidate the two men from each section station detail into an 8-man platoon station detail in order to perform personnel and vehicle decontamination after field operations have been completed. However, the platoon will still have four sections actively engaged in decontamination operations.

- (2) *Hand-operated decontaminating apparatus.* When hand apparatus decontamination methods are used, it is frequently advisable to divide the section into two 3-man details under the overall supervision of the section leader (fig. 8).

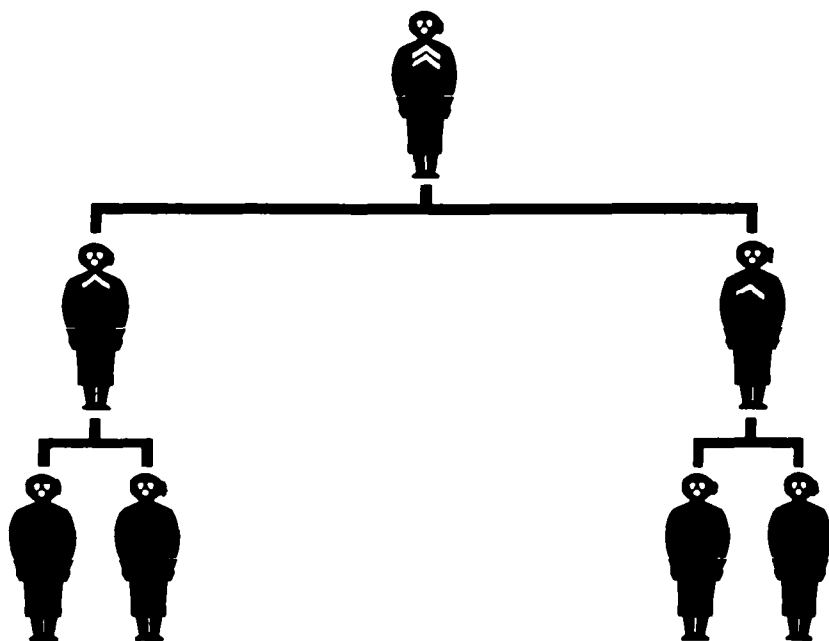


Figure 8. Organization of decontamination section into two details using hand-operated apparatus.

Section III. EQUIPMENT AND SUPPLIES

139. General

A detailed list of organizational equipment of the chemical decontamination company is given in TOE 3-217.

140. Decontaminating Equipment

a. A major item of equipment is the 400-gallon, power-driven, truck-mounted decontaminating apparatus. Mounted on a 2½-

ton, 6x6 truck chassis, the apparatus is equipped with shower rails for use in providing mobile shower service for troops. Information about the loading, operation, and maintenance of 400-gallon decontaminating apparatuses is given in TM's 3-223 and 3-407.

b. Auxiliary equipment includes gasoline-driven centrifugal pumps and 3,000-gallon coated fabric water tanks.

c. Miscellaneous TOE and TA items for use in decontamination work include buckets, shovels, and rakes.

141. Operational Supplies

Large quantities of decontaminating materials are used in the 400-gallon decontaminating apparatus. Allowances for these materials and for other expendable supplies required by the decontamination company are published in TA 3-104 and other appropriate tables of allowances.

142. Individual Protective Equipment

Protective clothing and protective masks are worn by personnel of the company during decontamination operations. Information about the types and allowances of protective clothing is given in appropriate technical manuals and tables of allowances.

143. Communications Equipment

The company is authorized one field telephone. Connections are made to the chemical battalion or other immediate command headquarters.

144. Transportation Equipment

The company is organically equipped with a sufficient number of motor vehicles to make it a 100-percent mobile unit. As the company is responsible for CBR decontamination operations over a large area, motor transportation is of prime importance. Motor transportation must be organized so that either the company can operate as a unit or the platoons can operate separately.

Section IV. TRAINING

145. Training in Decontamination

Training in decontamination includes the use and the relative effects of standard decontaminating agents. In addition, training should be given in utilization of substitute materials for decontaminants. (See TM 3-220.)

146. Drills With Vehicular Equipment

In drills or formations each platoon is headed by its 1/4-ton truck, followed by the truck-mounted, power-driven decontaminat-

ing apparatus with towed 1½-ton trailer. The column of platoons is headed by company headquarters vehicles.

147. Exercises With Miscellaneous Decontaminating Equipment

Information about exercises with miscellaneous decontaminating equipment is given in TM 3-220 and FM 21-48.

Section V. OPERATIONS

148. Reconnaissance

The decontamination company must make three types of reconnaissance: company site, prior planning, and preoperation.

a. Company site reconnaissance involves the survey of possible sites for the company's base of operations.

b. Prior planning reconnaissance is made to locate vulnerable installations, troop areas, and terrain features that may be targets for enemy CBR action. This reconnaissance should be made as soon as possible after the company is established on its site.

c. Preoperation reconnaissance consists of a preliminary and a detailed reconnaissance of an area that must be decontaminated. TM 3-220 contains details on the factors involved in this reconnaissance.

149. Factors in Selection of a Company Site

The selection of a site as a base of operations should be made with particular care; uppermost in consideration is the company mission, which is to furnish decontamination service to the units supported. Survey of the area is conducted to determine the extent and degree of contamination resulting from prior CBR attacks, and standard CBR markers (FM 21-40) are placed to indicate the area of hazard. Factors for consideration of the company commander in the selection of a company site are discussed below.

a. Convenience. The site must be carefully selected to minimize transportation needs and to facilitate efficient operation. Accessibility to priority targets that may require decontamination is a prime consideration. Service must be provided with the least inconvenience to the unit and to the troops being supported.

b. Cover and Concealment. Cover and concealment are necessary for the protection of personnel and operating facilities. Artificial camouflage may be necessary where natural concealment is not complete.

c. Terrain. Firm, well-drained terrain is desirable for a base of operations. Gently sloping ground is preferable to level ground, which may become a bog after a rain.

d. Existing Buildings. Existing buildings may be used for shelter or for administrative purposes after consideration of such factors as the tactical situation, traffic congestion, parking space, cover for vehicles, and proximity to areas likely to be bombed.

e. Water Supply. Accessibility to an adequate water supply is a prime factor.

f. Additional Factors. These factors include natural defense barriers and distance from the axis of supply and evacuation.

g. Alternate Site. The reconnaissance party should also select an alternate site for the company.

150. Arrangement of Company Site

a. General. The site should be arranged so that all components of the company operate efficiently. The area should be kept compact; however, sufficient room for comfortable operations should be allowed.

b. Headquarters Area. The administrative section should be centrally located. The company mess should be as near as possible to a source of potable water. The company supply, a first-aid station, and a personnel decontamination station should be conveniently located. The bivouac area should be near by, or not so far away as to slow down the primary functions of the company.

c. Motor Pool. The motor pool should be located near the headquarters area. The road to the motor pool should have a concealed approach of at least 100 meters.

d. Storage Area. Supplies and equipment should be stored where they may be picked up easily. A dry, well-drained area is an important factor for storage.

151. Preliminary Work Before Occupying Site

For information about preliminary work by a unit before it occupies a site, see paragraph 58.

152. Area Served By a Company

a. General. The size of an area a company can adequately serve varies with the situation. It may be assumed from experience that if all units operate from a common base, the three platoons can work effectively up to 8 kilometers from their supply point. The supply point is provided by a chemical depot company, communications zone.

b. In Stable Situations. In fairly stable situations, the company

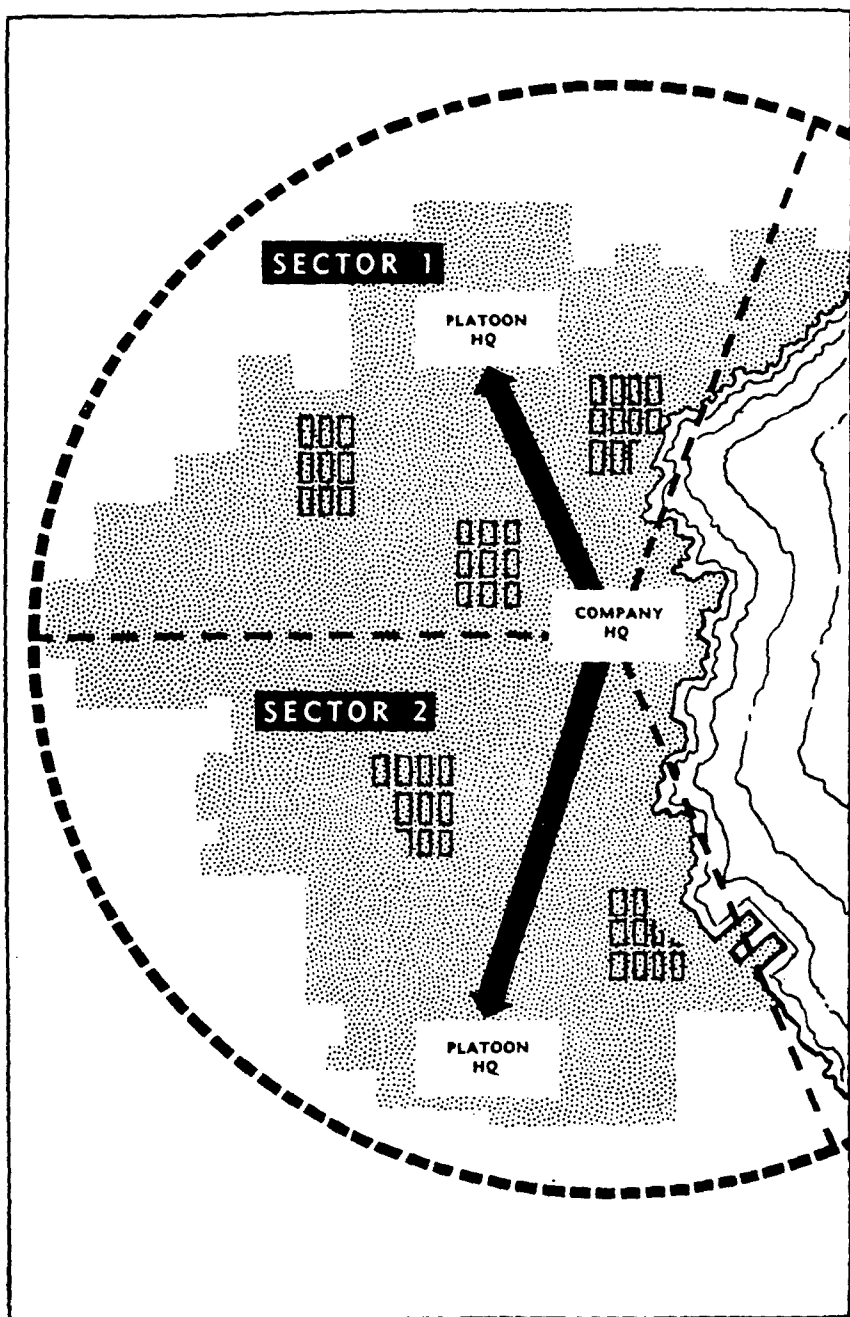


Figure 9. Division of chemical decontamination company's area of responsibility into two operating sectors with third platoon in reserve at company headquarters.

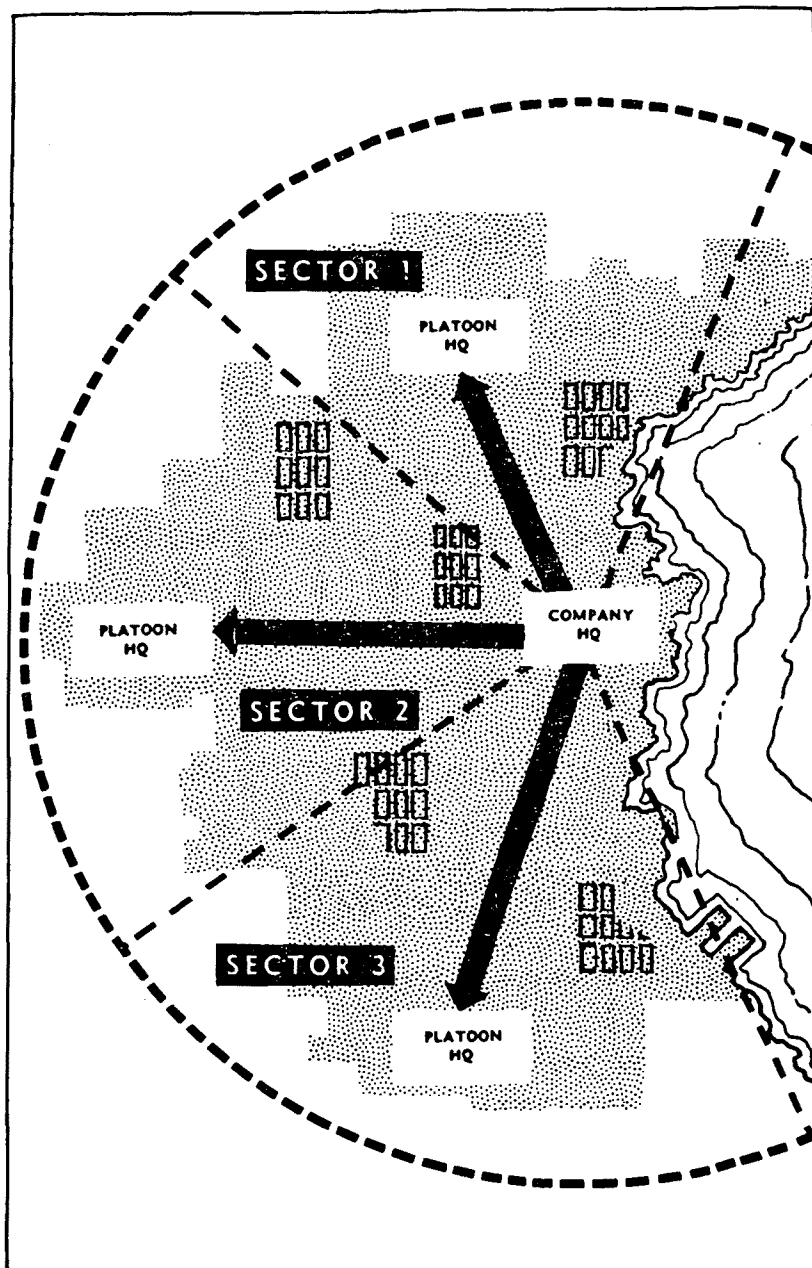


Figure 10. Division of chemical decontamination company's area of responsibility into three sectors with no platoon in reserve.

commander may divide the area for which he is responsible into well-defined sectors, each sector being covered by a platoon. The platoons receive rations from a unit in the area in which they are operating, but are not attached to that unit in any other way. The platoon is separated from its company in distance only; it remains under the command of the decontamination company commander and administratively is still part of the decontamination company. Under these circumstances, the company commander may divide the area of responsibility either into two sectors with one platoon in reserve or into three sectors with no reserve. In either case, all three platoons are operating platoons and should be employed in their primary mission of decontamination. Figure 9 shows the division of the company's area of responsibility into two operating sectors with the third platoon in reserve at company headquarters. Figure 10 shows the area divided into three sectors without a platoon in reserve.

153. Decontamination Capabilities

The decontamination capabilities of a chemical decontamination company, platoon, and section are shown in tables I, II, and III, respectively. The capabilities are expressed in square meters per hour (mixing time included). All figures in the tables are approximate and should serve only as guides. Varying circumstances may result in considerable variations from the figures listed. The decontaminants include slurry from a 400-gallon power-driven, truck-mounted decontaminating apparatus (PDDA); hot soapy water from the PDDA; dry mix (shoveled); and bleach (unmixed—shoveled).

Table I. Capabilities of a Decontamination Company

Decontaminant	Smooth surface (roads, etc.) (sq m/hr)	Short grass (sq m/hr)	Bush (sq m/hr)	Metal surface (sq m/hr)
Slurry (from 400-gallon, power - driven, truck - mounted decontaminating apparatus).	11,000	5,500	3,500	Not recommended, but may be used if necessary.
Hot soapy water (from 400 - gallon, power - driven, truck-mounted decontaminating apparatus).	Not applicable.	Not applicable.	Not applicable.	840 (used for nerve gases and biological agents).
Dry mix (shoveled)-----	2,500	1,250	840	Not used.
Bleach (unmixed—shoveled).	7,500	3,750	2,500	Not used.

Table II. Capabilities of a Decontamination Platoon

Decontaminant	Smooth surface (roads, etc.) (sq m/hr)	Short grass (sq m/hr)	Bush (sq m/hr)	Metal surface (sq m/hr)
Slurry (from 400-gallon, power - driven, truck - mounted decontaminating apparatus).	3,700	1,800	1,180	Not recommended, but may be used if necessary.
Hot soapy water (from 400 - gallon, power - driven, truck-mounted decontaminating apparatus).	Not applicable.	Not applicable.	Not applicable.	340 (used for nerve gases and biological agents).
Dry mix (shoveled)-----	840	420	275	Not used.
Bleach (unmixed—shoveled).	2,500	1,250	840	Not used.

Table III. Capabilities of a Decontamination Section

Decontaminant	Smooth surface (roads, etc.) (sq m/hr)	Short grass (sq m/hr)	Bush (sq m/hr)	Metal surface (sq m/hr)
Slurry (from 400-gallon, power - driven, truck - mounted decontaminating apparatus).	920	460	290	Not recommended, but may be used if necessary.
Hot soapy water (from 400 - gallon, power - driven, truck-mounted decontaminating apparatus).	Not applicable.	Not applicable.	Not applicable.	70 (used for nerve gases and biological agents).
Dry mix (shoveled)-----	210	100	70	Not used.
Bleach (unmixed—shoveled).	630	320	210	Not used.

154. Decontamination Procedures

Decontamination procedures and techniques are covered in TM 3-220 and in FM's 21-40, 21-41, and 21-48.

155. Decontamination Supplies

a. Varying Needs. Needs for supplies vary considerably, depending on whether the company's situation is static or mobile. In static situations, where each platoon is permanently assigned a definite sector, subdepots are built up in advance at each platoon base. In situations where all platoons operate from company headquarters but where certain definite installations have been desig-

nated for possible decontamination, supplies of decontaminating materials are stored near these installations to be available for immediate use. In situations of high mobility when the company cannot anticipate its missions, it is advisable to keep on hand the full authorized supply at the company depot. Under these conditions, it is highly probable that the unit will need additional transportation from the supported unit for emergency operations.

b. Supply. Decontamination supplies are obtained from the chemical depot company. The depot company will normally establish forward supply points to reduce the distance using troops have to go to get replenishment supplies. However, if the depot can be well forward or if good roads exist and enemy interference is low, drawing may be directly from the depot. Therefore, the decontamination company draws from the chemical depot forward supply point to replenish its basic load, or authorized stockage, and the platoons draw on the company. Again, the platoons may draw from the company base if distance permits, or the company may establish forward supply points and maintain them. It is best if the platoons can replenish from the chemical depot company's forward supply points, using organic transportation, since the company headquarters' service capabilities are not great. The supply or distributing points set up by the decontamination company itself are designed to facilitate operations by keeping supplies at strategic locations. Factors for consideration in establishing a distributing point include the following:

- (1) Availability to using personnel.
- (2) Concealment.
- (3) Advantageous position in the road net.
- (4) Dry ground.
- (5) Terrain that offers natural protection from mechanized, aerial, or patrol attack.

156. Water Supply

a. General. Sources from which platoons of the decontamination company obtain water should be as close as possible to the scene of decontamination operations. Streams and rivers are the most common sources of supply. Sea water is satisfactory for mixing with bleach. Truck-mounted decontaminating apparatuses not being used for decontamination operations may be used to haul water. In static situations, 3,000-gallon coated fabric storage tanks located at strategic points are filled with water for possible future use.

b. Water Heating. Water is heated by means of the hot water heater furnished with each power-driven decontaminating apparatus.

157. Personnel Decontamination Station Operations

The decontamination company is capable of operating personnel decontamination stations. Water for use by the stations is provided by the company truck-mounted decontaminating apparatuses. For information about the erection and operation of a personnel decontamination station, see TM 3-200 and FM's 21-40 and 21-48.

158. Miscellaneous Operations With Truck-Mounted Decontaminating Apparatuses

By utilizing its power-driven, truck-mounted decontaminating apparatuses, the decontamination company is capable of performing various operations other than decontamination. These capabilities, however, must not be allowed to interfere with the company's decontamination mission. The decontaminating apparatuses can be used for carrying, spraying, and pumping water for firefighting, road wetting, and vehicle washing, and for providing showers for personnel. The apparatuses can also be used for spraying insecticides and de-icing and defrosting fluids, as well as for preparing solutions for the waterproofing of tents and other fabric materials. Liquids or fluids that would cause corrosion or damage to the decontaminating apparatus and allied equipment should not be used. For detailed information about the use of truck-mounted decontaminating apparatuses, see TM's 3-223 and 3-407.

159. Smoke Screening Operations

When specially equipped with smoke generators and other smoke-producing equipment, the decontamination company becomes capable of accomplishing its secondary mission of providing smoke screens to conceal service and army rear areas.

160. Covered Space Requirements

Covered space requirements of the unit total approximately 74 square meters of floor space.

CHAPTER 6

CHEMICAL PROCESSING COMPANY

Section I. GENERAL

161. Mission

a. Primary Mission. The primary mission of the chemical processing company (TOE 3-77) is to impregnate clothing used for protection against CBR agents.

b. Secondary Mission. The secondary mission of the company is to operate a fixed field laundry.

162. Assignment

Chemical processing companies normally are assigned to a section of the communications zone on the basis of one company per 100,000 troops in the theater of operations. The company may be attached to a chemical service battalion for administration and operational control. When not attached to a chemical service battalion, the company will be under the operational control of the major command chemical officer.

163. Location

Chemical processing companies are normally located in the advance and base sections of the communications zone.

164. Capabilities

a. At full strength, the chemical processing company is capable of processing approximately 60,000 uniforms per month when operating its two clothing impregnating plants continuously from a fixed installation.

b. Each of the two platoons is capable of separate operations.

c. The company is adaptable to a type B organization.

d. Individuals can fight as infantrymen when required. The unit is capable of defending itself and its installations against hostile ground attack.

e. The unit has a mobility of 10 percent.

165. Coordination With Other Units

a. Quartermaster Units. Quartermaster units are responsible for furnishing clothing to chemical processing units for impregnation. Quartermaster units are also responsible for storing the impregnated clothing and for issuing it to the using troops.

b. *Engineer Units.* Engineer units may help erect buildings necessary for impregnating plant operations and may build and maintain roads to the plant site.

Section II. ORGANIZATION AND FUNCTIONS

166. Organization

The chemical processing company (fig. 11) is composed of a company headquarters and two platoons. The number, grades, military occupational specialties, and position or job designations of personnel are listed in TOE 3-77.

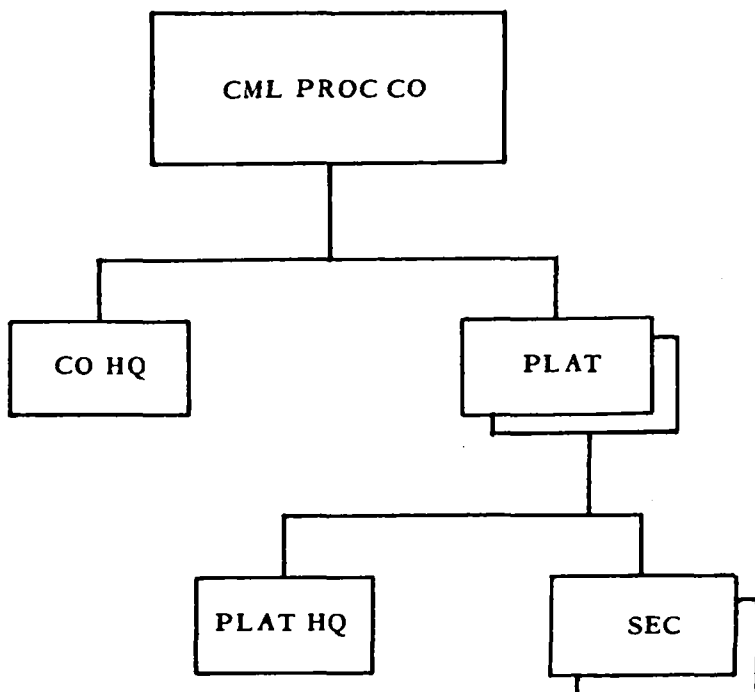


Figure 11. Organization of chemical processing company.

167. Functions

In addition to its primary mission of impregnating clothing, the company has the secondary mission of operating a fixed field laundry. Laundry functions may include dry cleaning, water repelling, decontaminating by laundering process, mildewproofing, mothproofing, treating with insect repellents, delousing, and sterilizing of clothing and other textile materials. Although these laundry functions are primary functions of quartermaster laundries, they are secondary functions of laundry-operating chemical processing companies.

168. Company Headquarters

a. Organization. The composition of company headquarters is shown in TOE 3-77.

b. Functions. Functions of company headquarters personnel include command responsibilities; supply and mess operations; power and vehicle maintenance; administrative duties; and overall supervision of the operation of the company's clothing impregnating plants.

169. Platoon

a. Organization. The platoon of a full strength company is composed of a platoon headquarters and two sections (fig. 11).

b. Function. The function of the platoon is to operate a clothing impregnating plant. Each platoon may operate independently and each can operate one plant continuously on a shift basis.

170. Platoon Headquarters

a. Organization. The composition of platoon headquarters is shown in TOE 3-77.

b. Functions. Functions of platoon headquarters personnel include command responsibilities and supervision of operations and maintenance of the clothing impregnating plant and the plant's chemical laboratory.

171. Section

a. Organization. The composition of a section is shown in TOE 3-77.

b. Functions. Functions of section personnel include operating the impregnating plant machines and equipment, operating the plant's chemical laboratory, receiving and sorting clothing for impregnation, and folding and sorting impregnated clothing.

Section III. EQUIPMENT AND SUPPLIES

172. Equipment

a. Listing of TOE Equipment. A detailed list of organizational equipment of the chemical processing company is given in TOE 3-77.

b. Clothing Impregnating Plant. The plant includes clothing impregnating and drying machines, impregnating solution tanks, a steam generator, a fuel storage tank, piping, a plant chemical laboratory, and equipment essential for erection of the plant. Information about the erection, installation, operation, maintenance, dismantling, and removing to new locations of clothing impregnating plants is given in TM's 3-281 and 3-409.

c. Auxiliary Equipment. Auxiliary equipment for use in the operation of the impregnating plant includes a 3,000-gallon coated fabric water tank, a water transfer pump, electric generators, scales, tables, and hand trucks. Information about the operation and maintenance of the equipment is given in technical publications relating to the specific items.

173. Operational Supplies

Large quantities of impregnating materials are used in the impregnation of clothing. Allowances for these materials and for other expendable supplies required by the plant and by the processing company are published in TA 3-104 and other appropriate tables of allowances. For a listing of supplies needed for a 24-hour per day operation of a clothing impregnating plant, see FM 3-8.

174. Communications Equipment

The processing company is authorized three telephones. A suggested hookup for the phones is to link company headquarters and the operating platoons through the higher headquarters switchboard.

175. Transportation Equipment

The organic motor vehicles are adequate only for operations of the unit at a fixed site. For information as to motor vehicle requirements for moving the personnel and equipment of the company, see FM 3-8.

Section IV. TRAINING

176. Purpose

The ultimate purpose in training the chemical processing company is to qualify the unit to perform its primary mission of impregnating clothing. All personnel must be qualified in their specialties in order to operate as a team to accomplish the company mission.

177. Training In Safety

a. Plant Safety. Members of the unit should be thoroughly trained in accident prevention by the use of safety equipment, orderly arrangement of equipment, and the proper understanding of directions pertaining to the operation of machinery; however, caution should be cultivated by forming good industrial habits based on a thorough understanding of plant procedure and equipment and the proper respect for dangers inherent to the operation of equipment.

b. Individual Protection. Personnel should be trained in wearing individual protective equipment, including protective masks and protective clothing; in handling hazardous impregnating chemicals; and in handling clothing that might be contaminated.

Section V. OPERATIONS

178. Company Site Selection

The company site should be chosen as near as practicable to rail or navigation heads to reduce to a minimum the distance required for movement of heavy plant equipment by truck. The site should also be as near as possible to quartermaster depots or laundry companies from which clothing for impregnation would be obtained.

179. Factors in Selection and Establishment of Company Area

a. General. After the general location of the unit has been allocated by the appropriate higher command, the company commander should make a personal reconnaissance to select a company area suitable for processing plant operations. The adaptability of a location to plant operation is a prime factor in choosing a site because the plants are large and require numerous facilities. The company should be established in as permanent a site as the tactical situation will allow. Factors for consideration in the selection of a company area include nearness to railheads, permanent road nets, quartermaster depots, chemical depots, adequate water supply, a good sewage disposal system, and availability of a bivouac area.

b. Survey of Area. Survey of the area is conducted to determine the extent and degree of contamination resulting from prior CBR attacks, and standard CBR markers (FM 21-40) are placed to indicate area of hazard.

c. Covered Space Requirements. Covered space requirements total approximately 1,100 square meters of floor space. The company's two processing plants require either a building of 960 square meters or two buildings of 480 square meters each. Company mess, kitchen, supply, and administrative functions require a minimum of 140 square meters of covered space (buildings or tents), appropriately dispersed.

d. Water Requirements. Accessibility to water is of paramount importance in the selection of a company area. Operation of the two plants and other company facilities requires about 4,000 gallons of water a day. If water is to be pumped into coated fabric water tanks by centrifugal pumps, the plants must be within 120

meters of the water supply. If a site is found where water may be fed into tanks by gravity, the distance from the plants to the source is regulated by the availability of pipe or labor required to install the pipe or construct delivery ditches. Civilian water mains should be utilized wherever possible. They should not be relied upon entirely unless investigation shows that the supply may be expected to be constant and adequate; and they should not be relied upon when subject to enemy air attack. Potable water is not required for plant processes.

e. Buildings. Existing buildings should be used to house the plants, whenever possible, to conserve construction effort and to leave the appearance of the area unaltered, thereby lessening the possibility of recognition by enemy air observers. Company personnel must be prepared to improvise buildings to house the plants if permanent-type buildings are not available. Watertight roofs are desirable but not essential. Provisions for the heating of buildings should be considered in selection of a site where freezing weather is expected.

f. Disposal of Plant Waste. Plant waste should be piped into civilian sewage systems if available, adequate, and reliable. If a civilian system is not available, dumping of plant waste into streams should be coordinated with the area engineer to prevent possible conflict with other users of the water supply. See FM 21-10 for information about requirements for field sanitation.

180. Arrangement of Site

The arrangement of the various installations of the company is governed by the existing buildings, terrain, and the tactical situation. The company site should be arranged so that work can be efficiently performed by each platoon independently of the other with both platoons within convenient distance of company headquarters facilities.

a. Company Command Area. The administrative sections should be located away from the most heavily traveled roads. The company supply should be located on a road convenient to all areas. A first-aid station should be centrally located.

b. Plant Site. The location of the two plants and the area around them is to a great degree determined by terrain, availability of water, and existing buildings. The immediate plant area should be relatively level, solid ground with good water drainage. Because of the heavy traffic they carry, roads in the plant area should be improved to carry traffic during unfavorable weather. Provision should be made within the plant area for the storage of needed supply of operating materials such as impregnating supplies and

fuel. For detailed information about the location and preparation of a site for an impregnating plant, see TM's 3-281 and 3-409.

181. Plant Layout

Detailed information about the layout of an impregnating plant is given in TM's 3-281 and 3-409.

182. Impregnating Process

The water-suspension or aqueous process of impregnation consists essentially of soaking permeable clothing in the impregnating solution. This results in a deposit of protective mixture on the clothing fabric. Excess suspension is removed by centrifuging, and the clothing is then dried. Leather, rubber, fur, oilskin, and impermeable protective clothing are not suitable for impregnation by the water-suspension process. For information about the process of impregnating clothing, see TM's 3-281 and 3-409.

183. Laundering Methods

For information about the methods of laundering permeable protective clothing by clothing impregnating plants, see FM 10-16.

184. Dyeing Process

For information about the procedure for dyeing clothing during impregnation operations of the clothing impregnating plant, see TM's 3-281 and 3-409.

185. Procedure for Mothproofing Woolens

For information as to the procedure for mothproofing woolen items of clothing, see FM 10-16.

186. Laundering Process for Decontamination of Radioactively Contaminated Clothing

For information about the procedures and formulas for this process, see TM 3-220 and FM 10-16.

CHAPTER 7

CHEMICAL LABORATORY

Section I. GENERAL

187. Mission

The mission of the chemical laboratory (TOE 3-97) is:

a. To provide for theater laboratory examination, evaluation, and identification of materiel with primary emphasis being placed on the chemical, biological (except identification), and radiological warfare aspects.

b. To provide for theater laboratory development of temporary devices and measures for chemical, biological, and radiological warfare activities.

c. To analyze, within capabilities, chemicals and other items procured in the theater to assure that the contract specifications are satisfied.

188. Assignment

The chemical laboratory is assigned to the theater of operations on the basis of one or more per theater as required.

189. Location

The laboratory normally is located in the base section of the communications zone. The specific location is determined by availability of facilities for successful laboratory operations.

190. Capabilities

a. The chemical laboratory is capable of:

(1) Performing chemical and physical operations pertinent to the performance of its mission.

(2) Conducting, within personnel and equipment limitations, studies, experiments, and research projects on subjects pertinent to other than those on CBR warfare materiel, as authorized and directed by the theater commander.

b. The laboratory supplements the technical intelligence capability of chemical technical intelligence detachments and may further exploit the findings of these detachments.

c. The chemical laboratory is not adaptable to type B organization.

d. The unit is attached to, or is dependent upon, other units for mess, motor maintenance, supplemental transportation, and religious support.

e. Individuals can fight as infantrymen when required. The unit depends upon other organizations for local security of installations against hostile ground attack.

f. The unit has a mobility of 30 percent.

191. Coordination With Other Units

a. *General.* Continuing coordination with Chemical Corps units and other units, such as the Counter Intelligence Corps, criminal investigation detachments, and other intelligence units within the theater of operations, is necessary so that the overall efficiency of the command can be realized. This coordination is given staff supervision of the theater chemical officer; it will include lines of coordination to higher or lower echelons of command to make certain that the laboratory receives all current pertinent reports. All coordination will be conducted through authorized technical and command channels.

b. *Chemical Units.* The chemical laboratory is equipped to give technical assistance to other chemical units. This assistance may be in the form of special analyses, technical advice, and aid on problems pertinent to the requesting unit but beyond its capability. Other chemical units assist the laboratory in the procurement and dissemination of samples, equipment, documents, and related matter.

c. *Army Medical Service Units.* Laboratory identification of biological samples from the field in the theater of operations is a function of the Army Medical Service. The chemical laboratory may be called on to assist in sampling and in forwarding samples, or to furnish other assistance in the area of biological warfare within its capability.

d. *Other Units.* The laboratory may aid other units by performing special tests, analyses, and evaluations within the limitations of laboratory personnel, equipment, and time. Such aid may include research and developmental activities for which the laboratory is particularly equipped. Other units may assist the laboratory by making available specialized personnel, equipment, reports, and related facilities of interest to the laboratory. The laboratory normally will not support civilian organizations.

Section II. ORGANIZATION AND FUNCTIONS

192. Organization

The chemical laboratory (fig. 12) is composed of a headquarters section, an intelligence section, and a laboratory section. The number, grades, military occupational specialties, and position or job designations of personnel are listed in TOE 3-97.

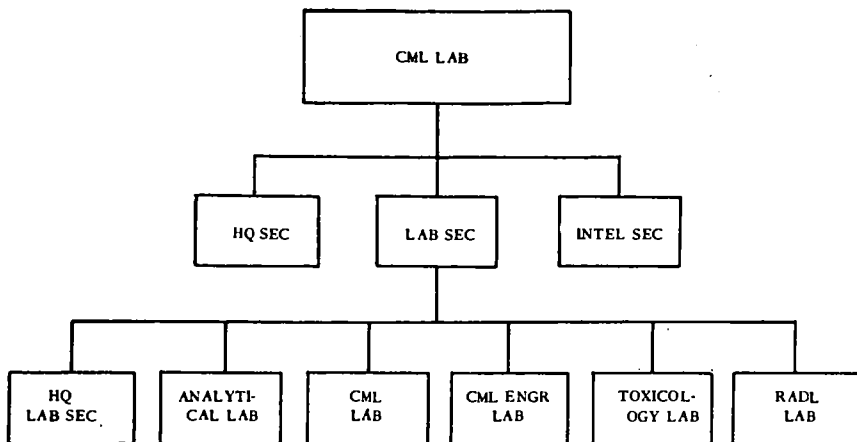


Figure 12. Organization of chemical laboratory.

193. Functions

a. Laboratory Technical Services.

- (1) *Testing of enemy materiel.* Captured enemy materiel, when properly processed, furnishes information of technical, tactical, and strategic value to all echelons of command. The laboratory has the function of testing and processing enemy CBR materiel. The laboratory will prepare reports evaluating components, use, and effectiveness of enemy materiel. Instructions are issued to troops in the handling, use, and maintenance, when applicable, of enemy materiel.
- (2) *Surveillance of United States and Allied Nation materiel.* Surveillance of United States and Allied Nations materiel is a continuing process. The laboratory has the function of performing surveillance tests and analyses on CBR materiel.
- (3) *Additional tests and analyses.* The laboratory may perform tests and analyses required by various agencies and branches of the army, such as analyzing and testing food and water.
- (4) *Listing of laboratory services.* A listing of some of the services that the laboratory may be called on to perform and the agencies for which the services are performed is given in table IV.

b. Recovery of Chemical Salvage. The laboratory may assist other technical service units in the location, collection, sorting, segregation, classification, evacuation, and other activities involved in the recovery of chemical salvage.

Table IV. Typical Chemical Laboratory Services

Agency for which service is performed	Service
Chemical Corps-----	Identification of enemy chemical agents. Determination of adequacy of protective equipment. Provision of methods of emergency decontamination and protection against new chemical agents. Provision of miscellaneous technical advice.
Air Force-----	Analysis of material for indications of sabotage. Investigation of corrosion inhibitors. Tests of cleaning mixtures, cooling liquids for aircraft, and parachute material.
Corps of Engineers-----	Analysis of water, concrete, and soil. Study of problems of photographic processes.
Army Medical Service-----	Analysis and testing of insecticides. Determination of purity of solvents. Examination of water and foods for toxic contamination. Identification of drugs. Supplementary analyses of blood and urine.
Military Intelligence-----	Investigation of foreign materiel.
Ordnance Corps-----	Analysis of sludges from motors. Analysis of soldering flux. Examination and testing of detonators, explosives, primers, and propellants.
Quartermaster Corps-----	Analysis of various substances. Development of insect powders, sunburn creams, and windburn salves. Tests on stored tentage and clothing. Examination of dyes.

c. Research and Development. The laboratory may be called upon to assist in research and development involving new items or components within the limitations of the personnel and equipment at its disposal. These research and development problems will primarily be new field modifications or expedients, and they will be coordinated with the U. S. Army Chemical Corps Research and Engineering Command. The theater laboratory in effect, within limits of technical channels, is a field agency of the zone of interior technical laboratories controlled by the chief chemical officer.

d. Services During Combat Periods. During combat periods, the laboratory gives primary consideration to immediate examination, evaluation, and identification of materiel pertinent to CBR warfare. During these periods, the laboratory will assume its responsibility as prescribed by the security plan of the area in which it is located.

e. Services During Noncombat Periods. During noncombat

periods, the laboratory emphasizes work on improving its potential effectiveness for combat periods. More time can also be allotted to research problems as directed by proper authority.

194. Headquarters Section

a. Organization. The composition of the headquarters section is shown in TOE 3-97.

b. Functions. Functions include command responsibilities and supply, personnel, and other unit administrative duties.

195. Laboratory Section

The laboratory section (fig. 12) is composed of a headquarters and five component or operational laboratories: analytical, chemical, chemical engineering, toxicology, and radiological. The composition of the section headquarters and of the laboratories is shown in TOE 3-97. Functions common to the laboratories include the preparation of reports and the devising of new techniques and apparatuses.

196. Laboratory Section Headquarters

Functions of the laboratory section headquarters include overall direction of the five operational laboratories: spreading the section's workload as uniformly as possible among the laboratories; assignment of priorities to problems; and coordination of activities of the section in which two or more laboratories are involved in the solution of a problem.

197. Analytical Laboratory

Functions of the analytical laboratory include performing chemical analyses and testing protective mask canisters and protective clothing. Additional functions that the laboratory may be called on to perform during peacetime include conducting qualitative and quantitative analyses of chemicals, foodstuffs, paints, and other materials.

198. Chemical (Operational) Laboratory

Functions of the chemical (operational) laboratory include the identification of organic compounds and suspect chemical agents, the performing of microorganic and macroorganic analyses, and the separation and purification of chemical agents for analysis by the toxicological and analytical laboratories.

199. Chemical Engineering Laboratory

Functions of the chemical engineering laboratory include tapping and sectionalizing enemy ammunition; developing means of

improving chemical munitions; demilitarizing, sampling, and subsequently disposing of unexploded Chemical Corps munitions; and demilitarizing, sampling, and subsequently disposing of chemical-filled bombs, shells, and other chemical-filled ammunition after the explosive elements have been removed by ordnance disposal personnel. Duties of laboratory personnel include the preparation of working plans and drawings for projects; preparation of posters, charts, sketches, and graphs; operation of darkrooms and direction of other still photography activities; specialized work in the design, maintenance, and repair of chemical equipment; maintenance of the laboratory plumbing and utilities; and installation of the component laboratories with the assistance of personnel from the other laboratory sections.

200. Toxicology Laboratory

Functions of the toxicology laboratory include the performing of toxicological tests and the determination of the physiological effects of toxic agents submitted to the organization for analysis.

201. Radiological Laboratory

Functions of the radiological laboratory include the analysis of suspect radiological agents and other radioactive material. The functions of the laboratory will normally be coordinated with the nuclear effects officer of the theater or command to which the organization is assigned.

202. Intelligence Section

a. Organization. The composition of the intelligence section is shown in TOE 3-97.

b. Functions. Functions include the evaluation, from a military standpoint, of the data generated by laboratory analysis of samples submitted to the organization. The work of this section complements the activities of chemical technical intelligence detachments, technical intelligence personnel of chemical combat support companies, and other collecting agencies.

Section III. EQUIPMENT

203. General

A detailed list of organizational equipment of the chemical laboratory is given in TOE 3-97.

204. Chemical Base Laboratory

A major item of equipment is the base chemical laboratory. It includes general laboratory apparatus, glassware, chemicals, spe-

cial testing devices, auxiliary equipment, and a technical library. When unpacked, boxes in which components of the laboratory were shipped may be used in the improvising of equipment.

205. Radiological Equipment

A major item of equipment of the radiological laboratory is the radiac set, AN/MDQ-1. It consists of a 26-foot van trailer equipped with apparatus, chemicals, and radioactivity-measuring instruments.

Section IV. TRAINING

206. Purpose

Training as covered in this section is primarily that required to adapt fully qualified technical personnel to army operations. The technical training in the laboratory consists of training assistants and adapting familiar techniques to problems presented. The ultimate purpose in training chemical laboratory personnel is to qualify the unit to perform its mission and thus provide effective chemical laboratory support for the field forces. The degree of training and the nature of the training received by the personnel prior to their assignment to the laboratory will vary greatly. Accordingly, the commanding officer should make a detailed study of the training each man has had and then devise a plan that will overcome individual deficiencies. Generally, the type of training that will be most effective within the chemical laboratory is the "coach and pupil" type.

207. Training Programs

The laboratory commander supervises the preparation and issue of the unit training program and schedules based on the appropriate ATP.

208. Technical Training

a. General. Upon completion of basic training, the individual soldier receives special technical training in military scientific procedures before being assigned to a chemical laboratory. From time to time, higher headquarters will announce quotas for pertinent service school courses. The laboratory commander should take advantage of applicable school courses by sending qualified men to them for specialized training.

b. Technical Personnel. The men assigned to the laboratory normally will have had previous civilian experience in their specialty, so that little time will be spent in training men in basic laboratory techniques. Training emphasis should be placed on adapting civilian techniques to military needs.

Section V. OPERATIONS

209. General

The laboratory operations include highly technical functions as well as routine functions such as administration, supply, and maintenance of equipment. The procuring of technical personnel with sufficient experience to attack the complicated problems assigned the laboratory is a determining factor in the successful operations of the laboratory.

210. Site Selection and Establishment

a. General. When the chemical laboratory occupies existing and undamaged laboratory facilities in a university or an industrial organization, few problems will confront the laboratory commander in establishing the unit area. However, when the laboratory must occupy a less desirable site in a suburban or rural area, difficulties in establishing the unit area often must be surmounted by improvisation and ingenuity.

b. Survey of Area. Survey of the area is conducted to determine the extent and degree of contamination resulting from prior CBR attacks, and standard CBR markers (FM 21-40) are placed to indicate area of hazard.

c. General Considerations. Regardless of the site selected for the laboratory, the following considerations apply:

- (1) *Arrangement of site.* The laboratory site should be arranged so that work can be efficiently performed by each section of the laboratory. Although room for comfortable operation is necessary, the area should be as compact as possible, since the floor space available near the theater headquarters may be limited.
- (2) *Unit command areas.* The working areas for headquarters and administrative personnel should be located away from the laboratory traffic. The laboratory supply area and a first-aid station should be centrally located.
- (3) *Alternate sites.* A secondary location should be designated for occupation in the event of military necessity.

d. Establishment of Site in Suburban or Rural Area.

- (1) *General.* It may be necessary for the laboratory commander to locate the chemical laboratory in an area that does not have existing laboratory facilities. Although such a location is not desirable, the laboratory can be set up to function efficiently when afforded adequate floor space and housing. Existing buildings should be used wherever possible. After space requirements for the laboratory proper are met, consideration should be given to

such factors as sleeping and messing facilities and motor pool facilities. Without the utilities available in a metropolitan area, the laboratory's organic utilities will be used.

- (2) *Preparation of building.* After a building having approximately 480 square meters of floor space has been obtained, a floor plan is prepared. Crates and boxes are unpacked, and the unit is arranged according to the plan. Given a suitable building, personnel of the chemical engineering section, with the help of the other laboratory personnel, require approximately 48 hours to install equipment; at the end of this time, the laboratory should be ready to perform all its functions.

211. Communications

Normally situated near semifixed or fixed installations with established wire, radio, and road communications, the laboratory depends on communications facilities provided by the supporting headquarters.

212. Transportation

The organic motor vehicles of the laboratory are adequate only for support of laboratory operations of the unit at a fixed site. For information as to the requirements for movement of the unit by motor vehicle, see FM 3-8.

213. Covered Space Requirements

Covered space requirements of the unit total approximately 480 square meters of floor space.

214. Water Requirements for Laboratory Operations

Water requirements for operations of the chemical base laboratory total approximately 300 gallons daily. In addition, about 25 gallons of distilled water are required daily.

CHAPTER 8

CHEMICAL COMPANY, COMBAT SUPPORT

Section I. GENERAL

215. Mission

The mission of the chemical company, combat support (TOE 3-7), is to provide CBR support for combat units of a corps.

216. Assignment

a. The company is normally assigned to army and attached to corps. In a field army three companies normally are under command and control of a chemical service battalion.

b. Operational control of the platoons is normally exercised by the chemical officer of the unit to which the platoons are attached.

217. Disposition

a. *General.* Although the company is assigned to the chemical service battalion at field army level, it is normally attached to a corps and disposed as follows:

- (1) One platoon will be further attached to each division of the corps.
- (2) The remaining platoons will remain under company control and will provide support to corps troops. To facilitate support, these platoons generally will be located near the main supply route of the corps. Location and displacement will be governed by currently assigned tasks.
- (3) In special situations, platoons not required for direct support of divisions and corps troops may be used to reinforce other platoons. The sections or individuals of the platoons normally are not utilized as separate elements. The platoon is the basic unit and is used as such. Platoons in support of airborne and armored divisions may be regrouped to form direct support sections and may be attached to task forces or combat commands as required.

b. *Company Headquarters.*

- (1) The company headquarters is normally located where it can best serve the corps. The operations officer serves as the company executive officer. He may be assigned additional duties such as liaison officer and as the commander of two or more platoons (less than the full company) operating jointly. In special situations when the

company is acting as a unit, he is engaged in planning and conducting CBR support operations. He serves as unit smoke control officer. The supply officer supervises both unit supply and the supply functions of the company and its platoons to divisions and corps troops.

- (2) The company is not capable of operating its own mess when its platoons are attached to divisions. Therefore, the company headquarters is attached to a larger unit, designated by corps, for rations and administrative or logistical support.

c. Platoons Attached to Divisions.

- (1) Normally, a platoon is attached to each division and is under the operational control of the division chemical officer. Continuous attachment of the same platoon to the same division is desirable. The platoon leader and the bulk of the platoon may be located in the division trains area. The platoon is then attached to a larger unit in the trains area, and the platoon cook assists the mess personnel of the larger unit.
- (2) The diversified operations of the platoon require the personal and continual supervision of the platoon leader. To insure that his platoon is providing proper support to divisional units, he makes continual reconnaissance of platoon operational areas and supervises and directs the platoon's efforts.

d. Platoons Attached to Corps. Platoons of the company not attached to divisions for direct support will remain under company control and can provide support to corps troops. The company normally is under the operational control of the corps chemical officer. Location and displacement will normally be governed by currently assigned tasks. In special situations these platoons may be used to reinforce other platoons of the company. However, the sections or individuals of the platoons normally are not utilized as separate elements.

218. Capabilities

The chemical company, combat support, is flexible. It is a category II unit (AR 320-5), is a 100-percent mobile, and is not adaptable to a type B organization. Each of the platoons has a variety of capabilities. Tasks within these capabilities are performed according to priorities established by the commander of the unit to which the platoon is attached.

a. With its organic equipment, each platoon can provide the following support for a combat division or for corps troops on a continuing basis:

- (1) Operation of a division (corps) distributing point.
- (2) Third echelon maintenance of division (corps) Chemical Corps equipment.
- (3) Chemical technical intelligence.

b. With its organic equipment, each platoon can provide the following support on a *priority* established by the commander of the unit to which attached:

- (1) CBR monitoring, survey, and reconnaissance, to include radiological fallout survey. WHEN THIS MISSION IS ASSIGNED, IT WILL PROBABLY TAKE PRIORITY OVER ALL OTHER MISSIONS DISCUSSED IN THIS CHAPTER. The platoon can operate in critical areas, and, when assigned the mission of monitoring, survey, and reconnaissance, it supplements the capabilities of the unit to which the platoon is attached.
- (2) Limited decontamination of CRITICAL areas and materiel, supervision of unit decontamination, and operation of one personnel decontamination station.
- (3) Advice to units on the procedure of performing field impregnation of clothing by means of portable impregnation sets.
- (4) Assistance in the CBR training of personnel and units of the organization to which the platoon is attached.

c. Each platoon can provide the following support, on a priority established by the commander of the unit to which the platoon is attached, WHEN ISSUED ADDITIONAL SPECIAL EQUIPMENT:

- (1) Operation and fuel support of eight smoke generators.
- (2) Production of smoke by smoke pots.
- (3) Service to portable and mechanized flamethrowers and preparation of flame field expedients.
- (4) Preparation of flame and toxic chemical minefields within capabilities and supervision of other troops in preparing toxic or composite minefields.

d. Personnel of the chemical company, combat support, may be attached to ordnance ammunition supply points for the purpose of issuing chemical class V supplies stored at the ordnance ammunition supply points.

219. Limitations

a. Two major factors must be considered in the utilization of the combat support company and its principal operating element, the platoon. Without consideration of these factors, the value of the company or platoon is considerably limited.

- (1) Priorities must be assigned by the chemical officer who has operational control. The platoon can perform many separate tasks, but it cannot perform all tasks simultaneously.
- (2) Special equipment must be issued to the platoon (company) in order to enable it to perform the support outlined in paragraph 218. For example, eight smoke generators must be obtained by the platoon if it is to produce smoke by means of generators.

b. Consideration should be given to the possibility that operational capability may be difficult to attain in tasks such as smoke generation, where the equipment required is not organic to the platoon (company). This limitation is applicable during both training and actual operations.

Section II. ORGANIZATION

220. General

The chemical company, combat support (TOE 3-7) (fig. 13), is composed of a company headquarters and six platoons. Each platoon consists of a platoon headquarters and four sections. The four sections are supply supervision, decontamination supervision, operations, and maintenance supervisor. The maintenance supervisor section is composed of a maintenance supervisor team and three mobile maintenance supervisor teams. When the company is at reduced strength, the number of platoons is reduced to four and the number of mobile maintenance supervisor teams in the maintenance supervisor section is reduced to two.

221. Composition

The composition of platoon headquarters, each section, and each team is shown in TOE 3-7.

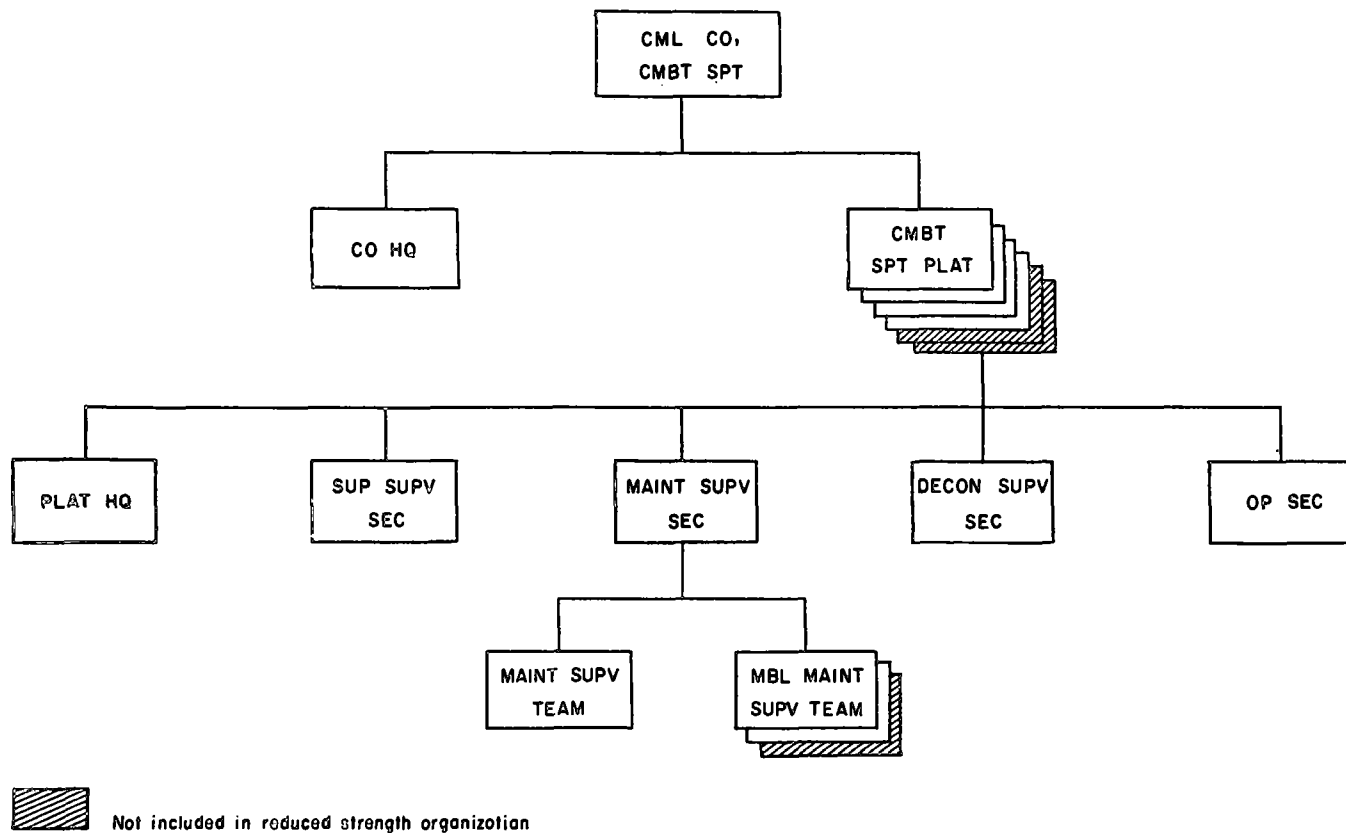


Figure 13. Organization of chemical company, combat support.

Section III. EQUIPMENT

222. General

A detailed list of organizational equipment of the chemical company, combat support, is given in TOE 3-7.

223. Transportation Equipment

The company has sufficient organic motor vehicles to move the personnel and equipment of the unit at one time.

Section IV. TRAINING

224. General

Personnel of the combat support company must be qualified not only in their primary military occupational specialties but also in one or more of the other technical specialties within the company.

225. Across-The-Board Training

a. The many different tasks that are or may be assigned the combat support company make it essential that the unit be highly flexible. The company may operate as a complete unit or may operate with one or more of the platoons attached to each division of the corps. The inclusion of an operations section in each platoon offers inherent flexibility to the organization. This flexibility of organization and operation, coupled with stated capabilities, requires across-the-board training for all personnel.

b. Aggressive application of the principles of training management is necessary. Personnel in positions of leadership in the company must be constantly on the alert for opportunities to effect cross training of personnel. Several of the means available are as follows:

- (1) Maximum use of integrated and concurrent training.
- (2) The preparation and utilization of standing operating procedures where applicable.
- (3) Use of on-the-job training time for training in an additional specialty.
- (4) Specialty training in an additional MOS for personnel possessing a specialty upon joining the company.
- (5) Assistance in the CBR warfare training of the commands to which assigned or attached.
- (6) Utilization to the maximum extent possible of various chemical and CBR schools.

Section V. OPERATIONS

226. General

a. Company. The company (fig. 13) is organized along functional lines to provide as many of the required CBR services as possible within the framework of an austere organization. The skills are so organized that the company can perform the services listed in paragraph 218. Sufficient equipment and personnel are not included in the TOE to accomplish all services simultaneously. The organization adopted represents a considered balance between the capabilities of the organization and the requirements of a division or corps troops for CBR support. The priority of tasks will be assigned by the division or corps chemical officer.

b. Platoon.

- (1) The platoon headquarters provides normal command supervision of the platoons. In addition to performing his normal duties, the chemical staff specialist may serve as a principal assistant to the platoon leader and platoon sergeant in a large radiological survey effort. The cook joins the unit mess to which the platoon is attached and is one of the company cooks when the company operates as a unit. The motor mechanic is included in the TOE at platoon level to provide vehicle maintenance when the platoon is operating separately.
- (2) The operations section includes 18 men who are trained during the advanced individual training in the fundamentals of chemical supply, maintenance, decontamination, smoke generator operation, and CBR survey. As the situation demands, they are allocated to other sections in the performance of the platoon's mission.

227. Platoon Operations on a Continuing Basis

a. Chemical Technical Intelligence. The technical intelligence specialists assigned to platoon headquarters are made available to the chemical officer of the command to which the platoon is attached to assist him in providing the commander, through the G2, with CBR intelligence. For details, see FM 3-130. These specialists are qualified to operate as chiefs of CBR survey parties; they also serve as liaison personnel between the platoon leader and the chemical officer exercising operational control.

b. Third Echelon Maintenance of Division Chemical Corps Equipment. The maintenance supervisor section includes one maintenance supervisor team and three mobile maintenance supervisor teams. The section is equipped with flamethrower servicing equipment and can supervise the servicing of portable and mechan-

ized flamethrowers at three widely separated points. This section also supervises the preparation of flame fuels for flame weapons and/or field expedients. The section participates in the technical inspection of division Chemical Corps equipment. Additional personnel are allocated from the operations section as required. Re-supply of the prescribed load of repair parts is a function of the maintenance section. The repair parts, however, may be handled by the supply section. Maintenance float stocks will be as prescribed in SB 3-34. These stocks may also be carried by the supply section.

c. Operation of a Division Chemical Distributing Point. The supply supervision section includes a section chief, an ammunition storage specialist, a parts specialist, and a supply specialist. The section provides the supervision and technical skills required in continuous operation of division distributing points for chemical class II, IV, and V supplies, as may be required. Supply handlers are allocated from the operations section by the platoon leader as the supply situation demands. Transportation for hauling bulk chemical supplies is provided by the division transportation officer.

228. Platoon Operations on a Priority Basis With Organic Equipment

a. CBR Monitoring, Survey, and Reconnaissance.

(1) *Chemical survey and reconnaissance.* The platoon headquarters can provide a team of six chemical survey and reconnaissance parties on a priority basis, as established by the commander of the unit to which the platoon is attached. Either the platoon leader, platoon sergeant, or chemical staff specialist acts as the team chief. With the use of the platoon's organic equipment, the team determines the area contaminated, establishes the type and degree of contamination, marks the area for identification, and renders necessary reports.

(2) Radiological monitoring.

(a) All platoon personnel are trained as radiological monitors. Radiac instruments are organic equipment and are kept at platoon headquarters.

(b) As a part of normal operations, instruments are turned on in place under many conditions so that the presence of fallout may be detected and reported. For example, instruments are turned on when the platoon is warned that fallout is expected in its area, when a nuclear detonation is observed, and at periodic intervals as

a routine check. The conditions under which instruments must be turned on are listed in TC 101-1 (1958) and must be incorporated in the unit SOP. Such monitoring is normally performed by *all* units. Under some circumstances, the platoon will be required to supplement the monitoring capability of other units.

- (c) When decontamination operations are being performed, equipment personnel, and small areas are monitored for radioactivity to determine the effectiveness of the decontamination.

(3) *Radiological surveys.*

- (a) Radiological surveys are performed under the direction of the chemical officer to determine the degree and extent of radiological contamination. The platoon is used to survey critical or unoccupied areas, or areas that are beyond the capabilities of other units. The size of the area that a platoon is capable of covering is being determined in current field exercises.
- (b) When required, the platoon can furnish a maximum of eight survey parties, each consisting of two individuals—a monitor and an assistant. The monitor takes instrument readings; records dose rates, time and location of each reading; and transmits readings as directed. The assistant may be either a driver or a radiotelephone operator, or both, as the situation dictates. He is trained to take over a monitor's duties, if required. The monitors must be capable of performing their duties in aircraft since they may be called upon to perform aerial surveys. Complete survey procedures are contained in TC 101-1.
- (c) When radiological survey is necessary, other missions of the platoon will probably be of lesser importance so that the platoon leader can draw upon any platoon personnel for the task.
- (d) Extensive survey operations will require additional vehicles, radios, and the use of army aircraft. The platoon TOE authorization of three AN/PRC-9 radio sets provides communication for only two survey parties and the control party. This limits the speed with which raw survey data can be transmitted to the using agency. For ground surveys employing all eight parties, a requirement exists for six additional radios to insure rapid receipt of information. Aerial survey parties will utilize installed aircraft radios. Ground

survey capability of the platoon can be increased by providing each party with a $\frac{1}{4}$ -ton or $\frac{3}{4}$ -ton truck. The TOE authorizes only two $\frac{1}{4}$ -ton and four $\frac{3}{4}$ -ton trucks for each platoon.

b. Decontamination.

- (1) *General.* The decontamination supervision section is staffed to supervise the performance of decontamination of only vital areas and critical supplies. Additional personnel are allocated as required from the operations section. Detailed procedures for CBR decontamination are found in TM 3-220.
- (2) *Limited decontamination of critical areas and materiel.* The decontamination supervision section is organized and equipped to supervise the performance of decontamination of only vital areas and critical supplies. The section can furnish advice and give assistance to units in organization and supervision of unit decontamination details.
- (3) *Supervision of unit decontamination.* Decontamination is a unit responsibility. The decontamination supervision section can provide advice and assistance to units and can supervise unit decontamination.
- (4) *Operation of personnel decontamination station.* Decontamination stations are established as deemed necessary by the commander of the unit to which the platoon is attached. The platoon is capable of operating one of these stations. The location of the area is chosen to provide concealment from air and ground observation. It should also be far enough from other installations to prevent their being contaminated with toxic vapor from clothing and equipment. See FM 21-40 and TM 3-220 for details.

c. Field Impregnation of Clothing. Army units are provided with sets for the field impregnation of clothing. The platoon provides qualified personnel to supervise unit efforts in impregnating clothing. The platoon itself does not impregnate clothing for other units. Field testing of impregnated clothing on a spot-check basis can be accomplished by the platoon with the impregnite-in-clothing testing kit. (See TM 3-303.)

d. CBR Training.

- (1) *General.* The complexity of modern warfare increases the requirement for attaining diversified individual and unit proficiencies through training. As an aid in implementing the CBR portions of his training program, the com-

mander of the unit to which the platoon is attached utilizes the technical advice and assistance of the chemical officer and of available chemical units. Assistance of an attached chemical combat support platoon for training purposes is obtained through the G3. This training support is coordinated with the chemical officer, who normally exercises operational control over the platoon and who plans and supervises CBR training for the G3.

- (2) *Assistance provided.* The platoons have the capability for providing effective assistance in the CBR training of divisional personnel and units. The type and degree of assistance furnished the division is dependent upon the training status of both the division and the platoons and upon the requirements of divisional units. The platoon is expected to assist in general CBR defensive training, in training of unit instructors, and in the integration of realistic CBR situations into field exercises and maneuvers.
- (3) *Benefits.* The utilization of combat support platoon personnel in the training of division personnel produces dual benefits. The division receives skilled technical assistance in CBR training, and the platoon maintains proficiency by exercising its technical specialties.

229. Platoon Operations on a Priority Basis When Issued Appropriate Additional Equipment on Special Authorization

a. Smoke Generators.

- (1) FM 3-50 provides specific instructions on the use of smoke generators in various situations and gives spacing guides.
- (2) The platoon smoke capability is used either independently in support of divisional units or to supplement the capabilities of a chemical smoke generator company. Under favorable meteorological conditions the platoon, operating eight smoke generators, can screen a front of 640 meters.
- (3) For independent smoke operations in support of divisional units, each platoon could typically be employed in the forward area screening of—
 - (a) Road junctions or points along a road, path, or main supply route to deny the enemy visual observation of friendly activities and to prevent enemy observed fire.
 - (b) Security and screening forces, to provide protection for withdrawal and retrograde movement.

- (c) Small areas for purposes of combat deception.
- (d) Limited movement of combat patrols and armor.
- (e) Enemy observation in a variety of combat situations.
- (4) The platoon leader and noncommissioned officers supervise the platoon smoke effort. The decontamination section, augmented by personnel from the supply and operations sections, provides fuel supply and resupply.
- (a) A suggested organization for platoon smoke operations is shown in table V. This suggested organization is based upon an independent platoon smoke operation employing eight smoke generators. Basic consumption factors per generator are 35 gallons of SGF fog oil and 3 gallons of gasoline per hour.

Table V. Suggested Organization For Platoon Smoke Operations

Duties	TOE position	Personnel required
Platoon Leader.....	Platoon Leader.....	1
Operations Sgt.....	Platoon Sgt.....	1
Section Leader.....	Cml Staff Sp.....	1
Fuel Supply.....	Decon, Supply, and Operations Section.....	7
Squad Leaders.....	Tech Intel Sp.....	2
Communications.....	Op Section.....	2
Mbl Maint Supv Team.....	Mbl Maint Supv Team.....	2
Smoke Gen Op.....	Op Section.....	8
Truck Drivers.....	As indicated in TOE.....	

- (b) With two exceptions, sufficient vehicles and personnel are authorized the platoon by the TOE to accomplish the smoke task. One exception is that the eight smoke generators are not TOE equipment and must be obtained through special authorization. The other exception is that one additional AN/VRC-9 radio set is required by the platoon leader for communication with higher headquarters.
- (5) When the platoon is attached to or placed in support of a smoke unit, it receives instructions from the smoke unit commander. Manpower and equipment requirements in this case are less than in an independent operation, since the smoke unit could provide supervision and perhaps communication and logistical support.
- (6) Since smoke generators are not organic equipment, the unit to which the platoon is attached must anticipate requirements for smoke. Time must be provided the platoon

toon to obtain generators, fuel, and replacement parts; to complete smoke planning; and to check and deploy equipment and personnel.

b. *Smoke Pots.* For information about the use of smoke pots in operations, see FM 3-5, FM 3-50, and TM 3-300.

c. *Flame Throwers and Flame Field Expedients.*

(1) *Servicing of portable or mechanized flame throwers.*

(a) Mixing of fuels and filling and pressurizing portable or mechanized flame throwers are accomplished by the maintenance supervisor section. Additional personnel are obtained from the operations section and from the using unit when required.

(b) Minimum essential flame fuel mixing and servicing equipment is organic to the platoon. This equipment includes an air compressor, a fuel filling kit, and a portable flame thrower service kit in each of the three mobile maintenance supervisor teams of the platoon. Each platoon headquarters is authorized one incendiary oil mixing and transfer unit capable of mixing 25 gallons of thickened fuel per minute. The principal item of additional equipment that may be needed for instructing other Chemical Corps personnel and continuing large-scale servicing of flamethrowers is

(c) Mixing of fuel and servicing of flame throwers are carried out in the rear areas or, if desirable, the mixed fuel is transported to the vicinity of the using unit by the mobile maintenance teams for servicing the equipment. Instructions for servicing flame throwers are contained in TM's 3-366, 3-376, 3-378, and 3-411.

(2) *Preparation of flame field expedients.* The maintenance supervisor section supervises the preparation of flame expedients. Additional personnel are allocated from the operations section and by the using unit when required. In large-scale operations the platoon supervises the employment and arming of flame field expedients by the using unit. Additional equipment needed for the flame field expedients is drawn from depots, and storage is handled by the supply section. The expedients can be prefabricated by the maintenance supervisor section and furnished using units when requested. Types and employment of ground flame expedients are contained in TM 3-300.

d. *Chemical Mines and Integrated Minefields.* The chemical combat support platoon may be called upon to assist in the installation of chemical mines for certain high priority operations. See FM 3-8

for unit capabilities to lay chemical landmines. The installation of chemical mines will normally be the responsibility of the using unit. An engineer unit will normally be responsible for the installation of chemical mines when used on a demolition site. The combat support platoon renders technical supervision to units responsible for employing integrated minefields.

230. Communications

a. The unit to which the company (platoon) is attached is responsible for establishing wire communications with the company (platoon). See FM 100-5 for responsibilities. Figure 14 shows a typical wire system for the company.

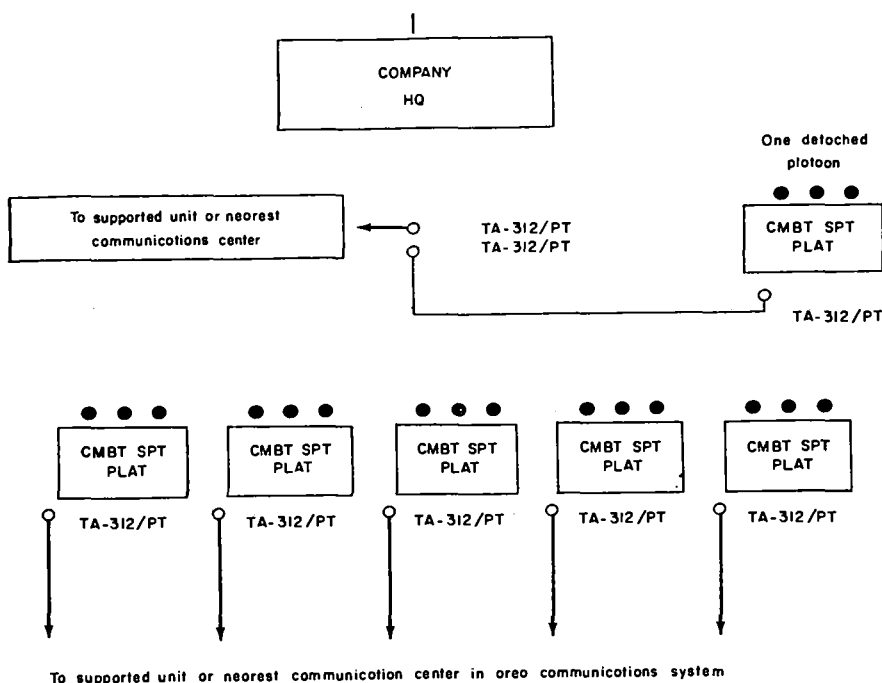
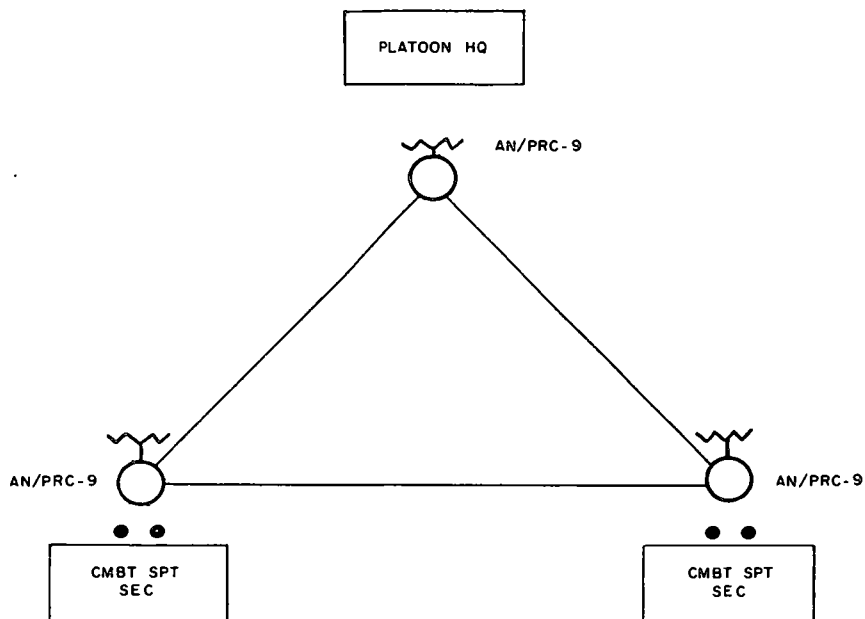


Figure 14. Typical wire system of chemical company, combat support.

b. During performance by the company (platoon) of certain of the priority services, such as smoke operations and CBR surveys, it is necessary that additional communications equipment be provided.

c. Radio communication is found at platoon level and consists of three AN/PRC-9 radio sets. See figure 15 for a typical radio system in each platoon. For performance of priority services, radio communication will be established as directed by the unit to which the platoon is attached or will be a matter of platoon SOP.



Note: The two radios shown with the Combat Support Sections can be used instead to provide communication for two Radiological Survey Parties, CBR Reconnaissance Teams, Smoke Generator Sections, or other work parties.

Figure 15. Typical radio system of combat support platoon.

CHAPTER 9

CHEMICAL SERVICE ORGANIZATION

231. General

The purpose of the chemical service organization (TOE 3-500) is to provide separate teams, or cells, for augmenting TOE units or other teams or for forming cellular chemical units (detachments, platoons, or companies).

232. Types of Teams

Two general types of teams are provided by the chemical service organization: one type includes administrative and headquarters teams, and the other consists of operational teams. Each general type consists of several specific types. The general and specific types of teams are listed below:

a. Administrative and Headquarters Teams.

- (1) Platoon headquarters—component: team AA.
- (2) Platoon headquarters—separate: team AB.
- (3) Company headquarters: team AC.

b. Operational Teams.

- (1) Supply teams: EA, EB, EC, and ED.
- (2) Maintenance teams: FA, FB, FC, and FD.
- (3) Decontamination teams: HA, HB, and HC.
- (4) Technical intelligence teams: IA and IB.
- (5) Mobile laboratory team: JA.
- (6) Chemical munitions safety control teams: KA, demolition and destruction; KB, escort crew; and KC, safety.
- (7) Radiological center team: LA.

233. Platoon and Company Headquarters Teams

a. Mission. The mission of platoon and company headquarters teams is to provide the control and administrative support required by operational teams.

b. Platoon Headquarters (Component) Team AA. Team AA is capable of command administrative control of one or more teams. It is assigned on the basis of one team AA per one or more teams of a strength of not less than 40 individuals, operating as a component of a larger organization.

c. Platoon Headquarters (Separate) Team AB. Team AB is capable of command and administrative control of one or more teams that operate separately. It is assigned on the basis of one team AB per one or more teams that operate separately.

d. Company Headquarters Team AC. Team AC is capable of command and administrative control of two or more platoons. It is assigned on the basis of one team AC per two or more platoons, except that the company strength will not be less than 100 individuals.

234. Supply Teams

The mission of supply teams EA, EB, EC, and ED is to supply Chemical Corps equipment. The teams are assigned as required. They are suitable for attachment to small general depots or to special mission or special weapons units. Team EA has a capability of receiving, classifying, storing, and issuing class II, IV, and V chemical supplies and equipment for approximately 5,000 troops; team EB for 5,000 to 10,000 troops; team EC for 10,000 to 25,000 troops; and team ED for 25,000 to 50,000 troops.

235. Maintenance Teams

The mission of maintenance teams FA, FB, FC, and FD is to provide field maintenance of Chemical Corps equipment. The teams are assigned as required. Team FA is capable of providing chemical field maintenance support for approximately 5,000 troops; team FB for 5,000 to 10,000 troops; team FC for 10,000 to 25,000 troops; and team FD for 25,000 to 50,000 troops.

236. Decontamination Teams

The mission of decontamination teams HA, HB, and HC is to provide chemical and radiological decontamination services. The teams are assigned as required. They may be used in rear area damage control operations. Team HA is capable of decontaminating critical areas and materiel for approximately 5,000 troops; team HB for 5,000 to 10,000 troops; and team HC for 10,000 to 25,000 troops.

237. Technical Intelligence Teams

a. General. The mission of technical intelligence teams IA and IB is to provide CBR intelligence. The teams are assigned to theaters of operation as required by subordinate commands to assist the command chemical officer in the fulfillment of his technical and scientific intelligence responsibilities. The teams may be organized into chemical technical intelligence detachments.

b. Chemical Technical Intelligence Detachments.

- (1) *Assignment.* Chemical technical intelligence detachments may be assigned to the field army to assist the army chemical officer in the tactical and technical aspects of his intelligence mission. Under special conditions, they

may be attached to corps under the operational control of the corps chemical officer. Under certain conditions, chemical technical intelligence detachments may be allocated to an army group.

- (2) *Functions.* Chemical technical intelligence detachments assist the command chemical officer in his responsibility to provide the commander, through the G2, with CBR intelligence by preparing intelligence reports and by performing the following functions:
 - (a) Collecting items of enemy CBR materiel that may be of special interest or have intelligence value.
 - (b) Making preliminary evaluations of the components, use, and effectiveness of collected enemy CBR materiel.
 - (c) Assisting chemical depot and supply agency personnel troop units in the use, handling, and maintenance of reissued enemy CBR equipment.
enemy CBR equipment.
 - (d) Expediting the flow of all captured enemy CBR materiel of intelligence interest to the appropriate agency.
 - (e) Locating and evaluating CBR intelligence targets of all types, including those previously designated and those located by the detachment, and reporting them to the appropriate agency.
 - (f) Assisting in the interrogation of prisoners of war.
 - (g) Collecting and evaluating CBR information obtained from captured documents and publications.
 - (h) Performing special operations as may be required.
- (3) *Training.* Subjects in which the intelligence personnel of chemical technical intelligence detachments will receive instruction will normally cover CBR materiel, equipment, literature, and documents; enemy CBR tactics and doctrine; climatic and terrain features that may influence CBR warfare operations; interrogation of knowledgeable enemy prisoners of war on CBR and related topics; and the preparation and submission of intelligence reports, surveys, memoranda, or special studies. Instruction will also be given in the collection, evaluation, and disposition of CBR materiel and equipment of all types. [See FM 30-16 (classified).]
- (4) *Operations.* Detailed information about the operations of chemical technical intelligence detachments is given in FM 3-130 (classified).

238. Mobile Laboratory Team

a. General. The mission of the mobile laboratory team JA is to accomplish laboratory examination, evaluation, and identification of equipment and materiel pertinent to chemical warfare; to develop temporary devices and measures for chemical warfare activities; and to provide laboratory assistance toward the solution of problems of a chemical nature submitted to the laboratory by appropriate commanders. Within its capability, the team may provide technical assistance to chemical technical intelligence detachments. Mobile laboratory teams are assigned to the communications zone as required.

b. Equipment. The team's equipment includes a chemical mobile laboratory. This laboratory can be transported in a 6x6, 2½-ton cargo truck and can be set up in a standard army field tent.

c. Water Requirements. Water requirements for operation of the laboratory total approximately 200 gallons daily.

239. Chemical Munitions Safety Control Teams

Chemical munitions safety control teams are assigned as required.

a. Demolition and Destruction Team KA. The mission of team KA is to demilitarize, destroy, or deactivate Chemical Corps munitions and the chemical fillings of ordnance type munitions.

b. Escort Crew Team KB. The mission of team KB is to escort hazardous types of Chemical Corps materiel while in transit by air, land, and sea.

c. Safety Team KC. The mission of team KC is to assist and advise in the provision and maintenance of safety and security programs at those plants, arsenals, installations, and activities where hazards exist in the manufacture or handling of Chemical Corps munitions and related items.

240. Radiological Center Team LA

The mission of the radiological center team LA is to perform prediction of fallout from nuclear explosions and to maintain plots of contamination. The teams are assigned as required. The team may perform either as a radiological center (RADC) or as an augmentation of a division, corps, or army RADC. For information about the operations of team LA, see TC 101-1.

241. Characteristics of Teams

The composition and authorized equipment of each team are given in TOE 3-500. Data about the teams, including full and reduced strengths, capabilities, bases of allocation, vehicular equip-

ment, and requirements for rail and air movement of personnel and equipment, are summarized in FM 3-8.

242. Cellular Chemical Units

a. General. A cellular chemical unit (detachment, platoon, or company) is composed of teams provided by the chemical service organization (TOE 3-500), with or without mess, automotive maintenance, and machine record stock accounting teams provided by the composite service organization (TOE 29-500). Each cellular unit is organized to meet a special requirement, and each team of the unit includes personnel and equipment required for the performance of a specific function.

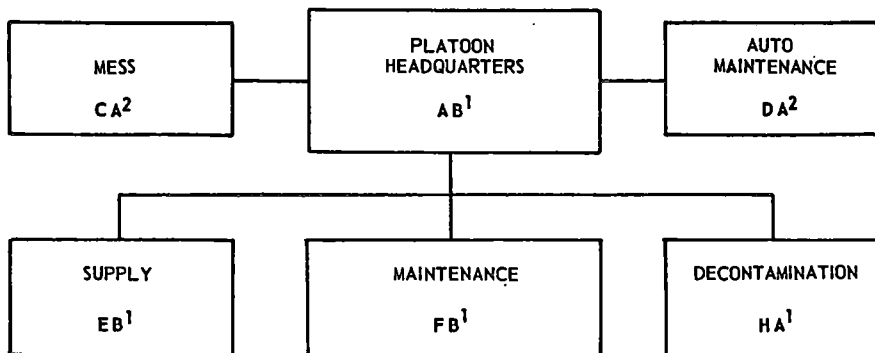
b. Organization.

- (1) Prior to requesting activation for a cellular unit to be organized from TOE 3-500, the commander should carefully check the personnel, composition, equipment, and capability of each team against the requirements of the unit.
- (2) When a cellular unit is organized with one or more operational teams but with no administrative and headquarters team, it is designated as a detachment.
- (3) A chemical service platoon or company may be organized with an administrative and headquarters team and with either operational teams of only one chemical service function, such as maintenance, or operational teams having several chemical service functions, such as supply, maintenance, and decontamination. A platoon composed, for example, of decontamination teams would be designated a chemical decontamination platoon. A platoon composed of a supply team, a decontamination team, and a maintenance team that is predominant by virtue of its relative size would be designated according to the designation of the predominating team, that is, chemical maintenance platoon. A platoon or company composed of teams of different chemical service functions, none of which are predominant, would be designated a chemical service platoon or a chemical service company.
- (4) Mess, automotive maintenance, and machine record stock accounting teams are provided, as required, by the composite service organization (TOE 29-500). The total number of personnel to be messed, the total number of motor vehicles requiring organizational maintenance computed in terms of vehicle equivalents, and the number of stock record transaction lines per month are deter-

mining factors in the selection of appropriate size mess, automotive maintenance, and machine record stock accounting teams. The characteristics of these teams are given in FM 3-8.

c. Typical Chemical Cellular Units.

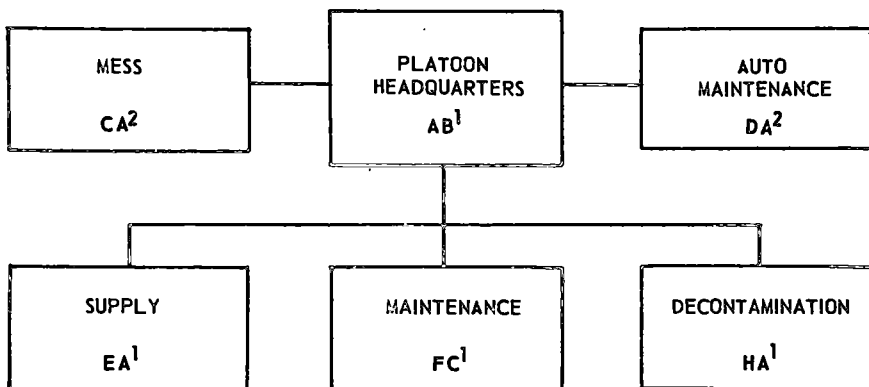
- (1) The organization of a typical chemical maintenance platoon having a predominant maintenance team is shown in figure 16.
- (2) The organization of a typical chemical service platoon having no predominant team is shown in figure 17.
- (3) The organization of a typical service company having no predominant team is shown in figure 18.



¹FROM 3-500

²FROM 29-500

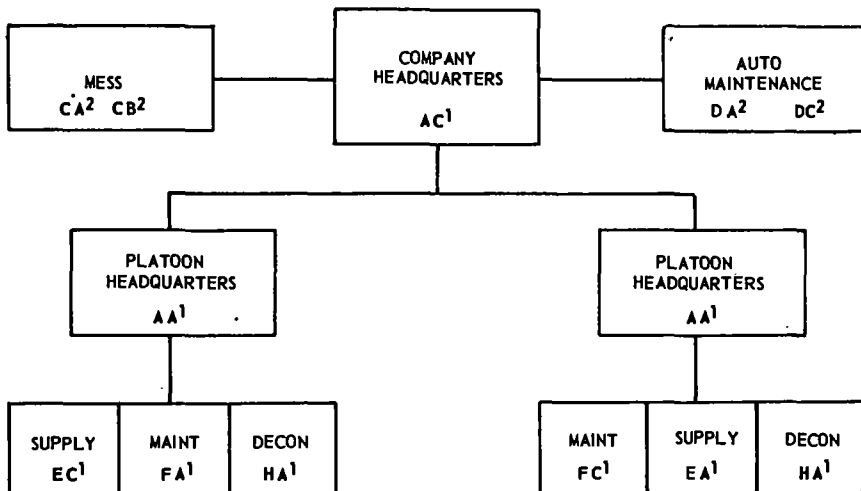
Figure 16. Organization of a typical chemical maintenance platoon.



¹FROM TOE 3-500

²FROM TOE 29-500

Figure 17. Organization of a typical chemical service platoon.



¹FROM 3-500

²FROM 29-500

Figure 18. Organization of a typical chemical service company.

d. Mobility. The degree of mobility of cellular unit must be computed for each specific combination of teams.

e. Capabilities. At full and reduced strengths, the capabilities of cellular units vary with the size and grouping of the teams used. The units are not adaptable to a type B organization. The units depend upon other organizations for local security of installations against hostile ground attack.

CHAPTER 10

HEADQUARTERS AND HEADQUARTERS DETACHMENT, CHEMICAL GROUP

Section I. GENERAL

243. Mission

The mission of the headquarters and headquarters detachment, chemical group (TOE 3-32), is to provide tactical, technical, and administrative command of Chemical Corps units.

244. Assignment

The headquarters and headquarters detachment, chemical group, is assigned to a field army or communications zone on the basis of one headquarters and headquarters detachment per field army or communications zone. It may be attached to a logistical command headquarters.

245. Capabilities

a. At full strength, headquarters and headquarters detachment is capable of providing command, control, staff planning, supervision of operations, and administration of from three to seven Chemical Corps battalions or other Chemical Corps units.

b. The unit is not adaptable for organization as a type B unit.

c. The unit is attached to or is dependent upon other units for mess, medical facilities, and supplemental motor maintenance.

d. With the exception of the chaplain, individuals can fight as infantrymen when required. The unit is capable of defending itself and its installations against hostile ground attack.

e. The unit has a mobility of 50 percent.

246. Coordination With Other Units

a. *Chemical Corps Units.* It is the responsibility of the chemical group commanders to coordinate the activities of assigned or attached chemical troop units and to maintain effective liaison with adjacent chemical troop units. The supply, maintenance, and other support functions of the chemical troop units, whether located in the communications zone or in the army service area, are so closely interwoven that close and harmonious coordination must be achieved in order to insure an efficient service support team.

b. *Command Echelons.* The chemical group commander in coordination with the army chemical officer or logistical command

chemical officer plans chemical supply and service support. Liaison officers from group headquarters aid in coordinating the activities of the group's units with the requirements of the supported forces.

c. Other Military Units. Basic principles governing the relations of the chemical group headquarters with other field army units are contained in FM 100-10.

d. Civilian Agencies. In the event of a major disaster in which any aspect of CBR or nuclear warfare has been employed, the commander of the chemical group may be directed by competent military authority to aid the civilian disaster relief authorities in coordination with G5 or with the director of civil affairs.

e. Allied Military Units. Any collaboration with allied military units, as well as the extent of the collaboration, will be as specified by higher headquarters.

Section II. ORGANIZATION AND FUNCTIONS

247. Organization

The unit (fig. 19) is composed of a group headquarters and a headquarters detachment.

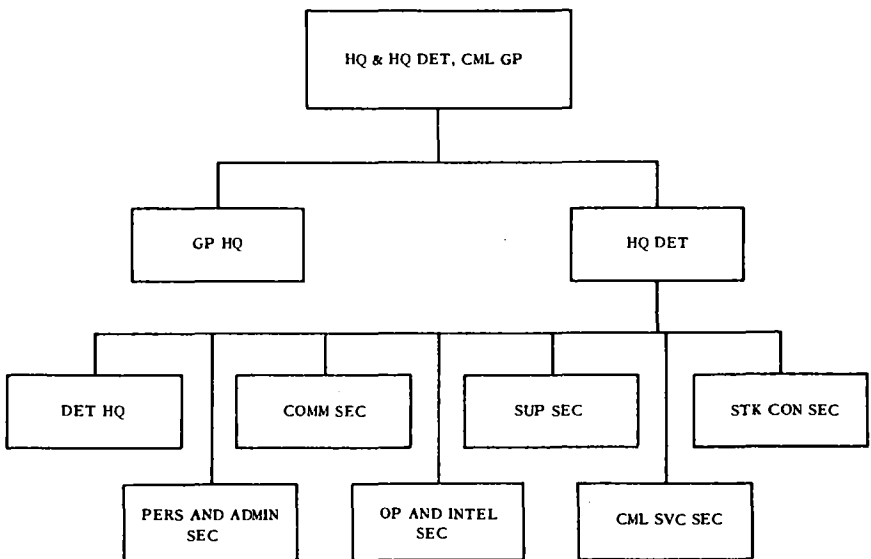


Figure 19. Organization of headquarters and headquarters detachment, chemical group.

248. Functions

a. In Army Service Area. The chemical group headquarters in the army service area coordinates, supervises, and provides administration for chemical battalions and separate chemical troop

units of the field army. It is normally under the operational control of the army chemical officer for whom it provides a means of coordinating the chemical supply and service operation of the command.

b. In Communications Zone. The chemical group headquarters in the communications zone acts as a logistical command service unit under the operational control of the logistical command chemical officer. It executes chemical supply and service operations in support of forces in the combat zone, and it provides general chemical support to communications zone troops. It coordinates, supervises, and provides administration for chemical service units. The group headquarters may be required to maintain the centralized stock control system for the theater.

249. Group Headquarters

a. Organization. The composition of group headquarters is shown in TOE 3-32.

b. Functions. Functions of group headquarters include command responsibilities and overall administration, supervision, and staff planning of group operations, training, and supply.

250. Headquarters Detachment

a. Organization. The headquarters detachment (fig. 19) is composed of a detachment headquarters and six sections. It is commanded by the group adjutant. The sections are personnel and administrative, communications, operations and intelligence, supply, chemical service, and stock control. The composition of the detachment headquarters and of the six sections is shown in TOE 3-32.

b. Functions. Functions of detachment headquarters and the six sections are given below:

- (1) *Detachment headquarters* handles the supply and administrative services of the headquarters detachment and assists in the operation of group headquarters, mess, motor maintenance, and personnel administration.
- (2) *Personnel and administrative section* maintains the personnel and administrative records of group headquarters and headquarters detachment.
- (3) *Communications section* installs group communications equipment and operates the group communications centers.
- (4) *Operations and intelligence section* performs the administrative and technical duties necessary in the training, organization, operations, troop information and education, and intelligence activities of the headquarters.

- (5) *Supply section* maintains supply records and performs administrative details of the group headquarters S4.
- (6) *Chemical service section* coordinates and supervises the various chemical services performed by the chemical service battalions or other units of the chemical group. The services include chemical supply, chemical impregnation of clothing, and chemical maintenance.
- (7) *Stock control section* operates the centralized chemical stock control system of the army or communications zone to which the chemical group is attached.

Section III. DUTIES AND RESPONSIBILITIES OF GROUP COMMANDER, STAFF AND KEY PERSONNEL

251. General

The duties of chemical group commander, staff, and key personnel are discussed in this section. For information about the duties and responsibilities of other personnel of the headquarters and headquarters detachment, whose MOS numbers are listed in the unit's TOE, see SR 605-105-5 and AR 611-201.

252. Group Commander

a. The group commander commands the chemical troop units assigned or attached to the group. He is responsible to the commander of the organization to which the group is assigned for operations.

b. The group commander meets his responsibilities by making timely decisions, by issuing timely orders, and by personal supervision. His professional knowledge must include a thorough understanding of the capabilities and limitations of the units under his command. He must also understand the requirements of the forces that his unit normally supports. He maintains his command at a high state of training, discipline, and operational efficiency and encourages initiative, ingenuity, and aggressiveness throughout all echelons. Within his prescribed directives, he allows his staff and unit commanders maximum freedom of action in order to foster self reliance and initiative. He prescribes brief standing operating procedures covering normal action to be taken in routine matters.

c. The commander exercises command through his subordinate commanders, with whom his relationship is direct and personal. He establishes policies, prescribes missions, and sets standards for the organization. By personal visits to his units and by formal or informal inspections he insures adherence to his policies, compliance with his orders, and maintenance of his standards.

d. The commander employs his staff to acquire information for him, to prepare detailed plans, and to otherwise relieve him of details so that he may have maximum freedom of action. He maintains a close personal relationship with his staff officers and insures that a feeling of mutual respect and confidence exists between staff and troops.

e. The duties of the group commander are listed in AR 220-60 and are discussed in FM 100-10.

253. Executive Officer

The executive officer is the principal assistant and advisor to the commander. He coordinates and supervises for the commander the many details of operations and administration, thus enabling the commander to devote himself to broad supervision and planning. The executive officer's primary duty is to direct and coordinate the unit staff. He may perform the following:

a. Formulate and announce policies for the general operation of the staff; and direct and coordinate the work of staff officers in their relations with other staffs, troops, commanders of subordinate units, and with each other.

b. Keep the commander informed of both the enemy situation and the situation of the command as to strength, morale, training, equipment, supply, and general effectiveness.

c. Represent the commander during his temporary absence or when authorized to do so; make decisions in execution of the commander's established policy; and refer important matters that establish policy to the commander for his decisions.

d. Obtain basic decisions from the commander and make supplementary decisions; give the necessary instructions to the staff; allot to the appropriate staff officers the detailed preparation of plans and orders; and edit drafts submitted by the staff for the commander's approval.

e. Supervise the execution of orders and instructions issued by the commander.

f. Make a continuous study of the command's situation with a view to being prepared for emergencies; and review and coordinate all instructions for the command, to avoid violations of established policies.

g. Direct the establishment of the command post in the location designated by the commander and insure that the various elements of the command are disposed to facilitate operations.

h. Supervise the keeping of the unit journal.

254. Adjutant (S1)

The adjutant is the advisor to the commander on personnel administrative procedures. He supervises the headquarters personnel and administrative section and is responsible for staff supervision of those duties charged to the personnel officer. The staff duties of the S1, in general, are similar to those of a G1. (See FM's 100-10 and 101-5.) In addition to performing his staff duties, he commands the group headquarters detachment; however, he does not control the operational functions of the sections of the headquarters detachment. As adjutant, he may perform the following:

a. Operate all activities pertaining to assignment, transfer, promotion, retirement, discharge, classification, procurement, and replacement of personnel; leaves of absence; decorations; citations; honors; and awards.

b. Publish, authenticate, and distribute orders and instructions in the name of the commanding officer as directed.

c. Direct preparation of records and reports originating in the organization; process official correspondence; and supervise mail distribution and collection.

d. Supervise the administration of subordinate units, except on matters of supply; supervise the movement and the internal arrangement, organization, and operation of the headquarters; and make arrangements for quartering the command.

e. Provide for the welfare and recreation of the command, including athletics.

f. Accomplish any other special staff function that is assigned or that is not specifically assigned to another staff officer.

255. Intelligence Officer (S2)

The intelligence officer is responsible to the commander for intelligence and counterintelligence activities within the command. The staff duties of the S2, in general, are similar to those of a G2. (See FM's 100-10 and 101-5.) The duties of the intelligence officer are performed by the S3 in addition to his other duties. He may perform the following specific intelligence duties:

a. Initiate a systematic and coordinated search for the required information by appropriate elements of the command.

b. Coordinate, through the normal chain of command and through staff contacts, the work of intelligence personnel within subordinate units; evaluate and interpret information received; and disseminate military intelligence promptly.

c. Keep the commander and staff informed of the enemy situation and capabilities.

d. Keep in close touch with intelligence officers of higher, lower, adjacent, and supported units for the purpose of exchanging information.

e. Foresee the needs for, obtain, and distribute maps, photomaps, and air photographs; and study and interpret air photographs.

f. Prepare a plan for counterintelligence measures and supervise its execution; and supervise communications security.

g. Furnish the executive officer with pertinent data for inclusion in the unit journal.

256. Operations and Training Officers (S3)

The operations and training officer (S3) is responsible to the commander for training and operations and for informational and educational activities within the command. The staff duties of the S3, in general, are similar to those of a G3. (See FM's 100-10 and 101-5.) He keeps the commander informed on all matters pertaining to training, operational efficiency, and disposition of units within the command. He performs the additional duty as intelligence officer (S2). The S3 is aided by an assistant S3.

a. *Duties Pertaining to Training.* The S3 may perform the following specific duties, which pertain to training:

- (1) Plan and prepare training directives, programs, orders, and field exercises.
- (2) Select and allocate training areas, ranges, training aids, and facilities.
- (3) Organize and supervise officer specialist schools within the command.
- (4) Supervise the information and education program within the command.
- (5) Make training inspections; prepare and supervise the execution of training tests; and prepare and analyze training records and reports.

b. *Duties Pertaining to Operations.* The S3 may perform the following specific duties with regard to operations:

- (1) Assist the commander in formulating plans and prepare, authenticate, and distribute operation orders and maps.
- (2) Provide information and make recommendations for the employment of subordinate units of the command; and supervise the movement of subordinate units and designate general areas for the bivouacking, quartering, and staging of these units.
- (3) Supervise reconnaissance, security measures, and signal communications within the command.
- (4) Establish liaison with adjacent, higher, and subordinate units as required.

- (5) Initiate requests for weather forecasts.
- (6) Supervise the determination of ammunition requirements and the allocation of ammunition in short supply; and designate priority for issue or allocation of combat weapons of equipment.
- (7) Supervise the preparation of the command report; and furnish the executive officer with pertinent data for inclusion in the unit report.
- (8) Control liaison personnel by instructing them in their duties and recommending their disposition.
- (9) Prepare tentative plans for future operations.

257. Assistant Operations and Training Officer (Assistant S3)

In addition to assisting the S3 in operations and training, the assistant S3 serves as group information officer. As group information officer, he organizes and supervises the presentation of the troop information program, which includes orienting officers and enlisted men, briefing discussion leaders, preparing and disseminating news summaries, and maintaining information displays. The duties of the group information officer are, in general, similar to those of a troop information and education officer. (See FM 101-5.)

258. Supply Officer (S4)

The Supply officer (S4) is responsible to the commander for formulating and executing supply plans that will keep the units of the command at peak operational efficiency. The staff duties of the S4, in general, are similar to those of a G4. (See FM's 100-10 and 101-5.) He may perform the following:

- a. Supervise and coordinate all supply functions of the command to insure adequate procurement and proper distribution; and formulate and supervise the execution of a plan for the timely arrival of all classes of supply.
- b. Keep the commander and staff informed of the supply status of the command.
- c. Keep detailed records of the overall supply, location of supply points and depots, and available transportation; keep a current record of all traffic data and information on road nets; and maintain a record of critical items of supply and equipment.
- d. Prepare, authenticate, and distribute administrative orders and instructions that relate to the activities of the S4 section.

259. Chemical Supply Officer

The group chemical supply officer advises the commander on chemical supply matters and furnishes information on the status of chemical supplies and equipment. The chemical supply officer has the additional duty of group communications officer.

260. Communications Officer

The group communications officer is responsible for the establishment and operation of the communications system of the command. He assists and advises the commander on matters pertaining to signal communications. He may perform the following specific duties:

- a.* Plan and recommend to the group commander a system of communications adequate for group needs.
- b.* Install, operate, and maintain the communications system for the command, or for that portion for which the group commander is responsible.
- c.* Supervise the maintenance of signal security, including the employment of codes and authentication systems for the command.
- d.* Inspect and coordinate the training of communications personnel of subordinate units, when so directed by the group commander.
- e.* Prepare such orders and procedures, signal operation instructions (SOI), and standing operating procedures (SOP) as may be needed.
- f.* See that all directives pertaining to signal communications are distributed and understood throughout the command.

261. Chaplain

The chaplain is a special staff officer on the group commander's staff. He is charged with functions pertaining to the religious and moral life of the command, including dependents of military personnel as well as authorized civilians. The principal functions of the chaplain are set forth in FM 101-5.

262. Sergeant Major

The sergeant major holds a special assignment in a chemical group comparable to that of the first sergeant of a company. He is the principal enlisted assistant to the group commander. He serves as first sergeant of the group headquarters detachment in addition to performing his duties as group sergeant major, which duties include the following:

- a.* Control distribution of all incoming communications, directives, and publications by establishing operating procedures for routing all routine material.

b. Personally examine and route all other material to individuals or sections concerned for action or information.

c. Determine distribution for new publications and directives on the basis of authorized distribution and mission of section served.

d. Study communications, directives, or publications requiring reports or correspondence to determine the most logical content and method of preparation.

e. Prepare correspondence with established policy and draft other correspondence in standard army form; and prepare special or recurring reports.

f. Supervise lower grade clerks in preparation of correspondence or reports by furnishing them with notes or oral instructions.

g. Supervise establishment and maintenance of file systems.

h. Make periodic checks to insure that regulations are being properly posted and filed.

i. Keep duty rosters for enlisted men; and assign personnel to duty and reassign them as necessary to meet the workload.

j. Enforce security measures in handling classified material.

k. Recommend approval of leave and pass requests as workload permits.

l. Assemble and prepare unit publications such as orders, bulletins, circulars, and memorandums; check and prepare final drafts for approval; and supervise distribution of completed publications.

263. Personnel Sergeant

The primary duty of the personnel sergeant is the coordination of the headquarters personnel section. Other duties may include the following:

a. Interview enlisted personnel to obtain information for military records.

b. Supervise maintenance of current classification records of officers and enlisted men.

c. Recommend assignments, based on qualifications and experience of enlisted personnel, to occupational specialties and career fields.

d. Supervise preparation of periodic and special reports of classification based on qualification records.

e. Prepare periodic inventories of personnel.

f. Conduct training classes or provide individual instruction for designated personnel.

g. Advise and assist unit commanders and supervisory personnel in matters pertaining to personnel management procedures.

h. Consolidate unit reports when required.

264. Operations Sergeant

The operations sergeant assists in training troops and in technical intelligence activities. He may perform the following specific duties:

- a.* Prepare or supervise the preparation of training reports and schedule training hours and phases.
- b.* Maintain records concerning individual and unit training.
- c.* Keep units of the command informed regarding availability of training aids.
- d.* Inform the S3 of the requirements for training materials.
- e.* Demonstrate new methods and techniques for operating, maintaining, and tactically employing Chemical Corps equipment.
- f.* Prepare technical intelligence reports on enemy equipment.
- g.* Assist the intelligence sergeant in the technical aspects of his activities dealing with CBR warfare equipment.
- h.* Assist in preparation and revision of operations and situation maps.
- i.* Supervise the clerical activities of the clerk typists.

265. Communications Section Chief

The communications section chief supervises the headquarters communications section in the installation, operation, and maintenance of the signal communications system. His specific duties may include the following:

- a.* Assist in establishing the communications system of the command.
- b.* Supervise the operation of the communications facilities.
- c.* Assist in preparation and conduct of on-the-job and classroom technical training programs.
- d.* Supervise the maintenance of communications facilities.

266. Chemical Maintenance Officer

The chemical maintenance officer supervises the chemical maintenance activities of the chemical group.

267. Chemical Processing Officer

The chemical processing officer supervises the location and operation of the chemical processing companies of the chemical group. He provides staff liaison and technical supervision and advice for the chemical processing companies. He is responsible for reports to the commander and higher headquarters concerning chemical processing activities.

268. Stock Control Officer

The stock control officer is responsible for maintaining the centralized chemical stock control system when the group is directed to operate the system for the communications zone to which it is attached. He determines supply requirements, initiates requisitions to maintain stock balances at required levels, determines local procurement needs, and controls stock levels in depots as prescribed by the theater commander. He supervises the keeping of records by the section and insures that stock record cards are current and accurate.

269. Chemical Supply Specialist

The chemical supply specialist is the chief assistant to the stock control officer. He supervises the chemical stock control and stock record keeping activities of the section and is assisted by the stock control supervisor. His specific duties may include the following:

a. Assist in organizing and establishing sections to perform stock control and administrative functions.

b. Assist in determining personnel assignments and allocation of duties.

c. Supervise processing of incoming requisitions and due-in documents.

d. Insure that necessary document files and control registers are established in accordance with SR 780-40-1.

e. Make estimates on local requirements to assist in determining adequacy of stock levels.

f. Supervise preparation of requisitions to meet special requirements.

g. Assist in preparation of inventory schedules and supervise inventory teams.

h. Disseminate instructions and supply procedures to subordinate personnel.

i. Supervise preparation of records, forms, and reports incidental to supply operations.

Section IV. EQUIPMENT

270. General

A detailed list of organizational equipment of the headquarters and headquarters detachment, chemical group, is given in TOE 3-32.

271. Communications Equipment

The group headquarters and headquarters detachment is authorized six telephones—one for the detachment headquarters

and one for each of five sections: personnel and administration, communications, operations and intelligence, supply, and chemical service. The unit is also authorized one telephone switchboard, one telegraph-telephone terminal, and one teletypewriter set, which are assigned to the communications section. The switchboard handles calls from telephones or switchboards of subordinate units and calls to switchboards of higher units. The teletypewriter is used in the army or communications zone teletypewriter net.

272. Transportation Equipment

The organic motor vehicles of the headquarters and headquarters detachment are not capable of moving the personnel and equipment of the unit at one time. The unit may be moved by shuttling its organic vehicles or by using additional, nonorganic vehicles. Information is given in FM 3-8 about the requirements for additional motor vehicles for movement of the unit at one time.

273. Other Equipment

Necessary items are provided for organizational maintenance and other normal functions of the unit. Since some operations may require the headquarters to operate separate forward and rear echelons, sufficient tentage and mess equipment are authorized to allow this type of operation.

Section V. TRAINING

274. Purpose

The ultimate purpose of the unit training is to provide a technically proficient team capable of providing the headquarters with the proper support in accomplishing its mission. It is important that headquarters personnel be especially well trained in their primary and secondary duties since their supervisory and record keeping duties affect the entire command. Regardless of his primary assignment, every soldier must be taught that he is obligated to fight in defense of his unit or area.

275. Planning

Planning must be continual. The group S3 determines the training objectives and writes training directives to guide the battalion S3 section in the preparation of plans. During the cadre training period, the unit training program and training schedules are prepared: lesson plans and training tests are written; training aids, equipment, and ammunition are obtained; and instructors

are selected and qualified. Necessary coordination, substitute methods, and alternate schedules are discussed and plans are prepared to overcome obstacles.

276. Unit Training Program

The unit training program is prepared in accordance with the army training program for the detachment.

277. Supervision

a. The detachment commander and his section leaders must actively and personally supervise the training process in order to insure the quality and thoroughness of the training. Instruction must be observed continually in order to determine how well and how completely training directives are being carried out. Observations will be followed by constructive criticism designed to achieve and maintain a high standard of instruction.

b. The group S3 section is responsible for generally supervising group training activities, maintaining training records, and keeping the units of the command informed regarding availability of training aids. The section leaders of the headquarters detachments will work closely with the group operations sergeant on all training problems.

Section VI. OPERATIONS

278. Location of Group Headquarters

a. *Army Service Area.* In the army service area the chemical group headquarters will generally be located near field army headquarters.

b. *Communications Zone.* In the communications zone, the chemical group headquarters will normally be attached to a logistical command. The general location of the chemical group headquarters will be determined by the directorate staff of the logistical command. The area assigned should be accessible to all supported units and near the office of the logistical command chemical officer. The exact location will be chosen after local reconnaissance by unit commanders.

279. Command Post Location and Displacement

a. A general location for the command post will usually be designated by army, communications zone, or logistical command headquarters. The group commander will prescribe the exact location of his command post and the general location of his subordinate units. Subordinate units must be located first so that the command post can be located in a site that will facilitate control

of the units. Recommendations for the location of the command post are made by the S3 following consultations with the communications officer and the S1 to determine possible locations from the standpoint of communications and quarters. A ground reconnaissance is made to determine the actual site.

b. When a displacement of the command post is planned, the S3, after consultation with higher headquarters, confers with the S1 and the communications officer and recommends the location. Normally, after the actual site has been selected by reconnaissance, the S1 goes to the new location accompanied by guides, the communications officer, and the necessary communications personnel to install communications facilities. The command post is then displaced, usually in two echelons to avoid loss of control and operational time during the displacement.

280. Site Selection Factors

a. *Mission.* The group headquarters must consider the distance to higher headquarters, the location of subordinate units, and the axis of communication and transportation with respect to the mission of the unit.

b. *Survey of Area.* Survey of the area is conducted to determine the extent and degree of contamination resulting from prior CBR attacks, and standard CBR markers (FM 21-40) are placed to indicate area of hazard.

c. *Cover and Concealment.* Natural cover and concealment are used as far as possible to conceal the command post and its troop bivouac and motor pool area. Camouflage and the use of dummy installations are also measures to be considered.

d. *Existing Buildings.* Whenever the situation permits, it is good practice to make use of existing buildings. During operations with an army or corps, the headquarters will usually bivouac in the open, utilizing terrain to the maximum advantage. In the communications zone, or in a static situation, facilities and space may be located in towns or villages. Factors for consideration in the selection of local buildings include traffic congestion, proximity to areas likely to be bombed, billeting availability, and water supply.

e. *Terrain.* The headquarters area should be located on firm, well-drained ground, sufficiently flat to allow setting up tents, and with as much natural cover and concealment as possible.

281. Arrangement of Site

a. *General.* Once the site of the command post has been selected, the S1 (in coordination with the communications officer) determines the interior arrangement of headquarters. He designates

the space and area to be occupied by the commander and each staff section, and he coordinates the location of other activities.

b. Headquarters Area. The message center should be located at the natural entrance to headquarters. The unit supply and the bivouac area should be conveniently located near headquarters. In general, the areas and activities of the headquarters area will be dispersed enough for comfortable operation yet not too far apart for efficient operation. The need for long walks or truck movement of personnel between these areas should be avoided.

c. Motor Pool. The motor pool should be located near the headquarters area in a firm, well-drained location. The location should be concealed, accessible to vehicles, and placed so that its possible detection from the air will not disclose the location of the command post proper.

d. Signal Facilities. The switchboard and group teletypewriter are installed near incoming wire circuits. The switchboard location should be free from noise and interference.

282. Preliminary Work at Site

a. Security consistent with the location of the unit and the tactical situation will be provided. If the site selected is in an area recently occupied by enemy forces, it will be inspected for boobytraps and tested for contamination by the advance party.

b. Roads and paths are laid out and marked with signs and tape. All available concealment is used in selecting routes.

c. Markers are placed to indicate the position of headquarters, motor pool, and other installations.

d. Guides will be selected from the reconnaissance party to aid the convoy in locating the area.

e. Movement schedules are prepared by the headquarters and administrative unit S3's in order to control the movement of individual units. Individual unit schedules will then be prepared designating priority of movement (if unit is to be moved in two echelons) and giving all the necessary data for accomplishing a smooth and orderly movement.

283. Technical Operations Control

a. Measures for Direct Control of Units.

- (1) *Disposition.* Commanders of headquarters and administrative units control the disposition of units assigned or attached to their command. For example, a chemical group commander in the army service area will determine the appropriate location of his battalions and the assignment of support responsibilities consistent with the support mission given him and make recommendations to army headquarters.

- (2) *Responsibility for operations.* Since group commanders are responsible for the operations of their subordinate units, they can exercise control over these units by approval or disapproval of operational plans submitted by these units. Standing operating procedures and operations directives prepared by the group S3 section are also instruments for the direct control of subordinate units.
- (3) *Recommendations to higher headquarters.* Group commanders hold conferences with higher headquarters staff chemical officers where the commanders can submit recommendations as to the employment of their subordinate units. Another means of controlling units through recommendations is the command report submitted by group headquarters.

b. Measures for Indirect Control of Units. Among the many indirect measures that a commander may use to effect control of his subordinate units are the following:

- (1) *Assignment of personnel.* Group headquarters personnel sections assign replacements to their subordinate units. The group commander, therefore, decides which units need extra personnel, which must be understrength (if this becomes necessary), and which units will get any specific individual or individuals.
- (2) *Assignment of transportation.* When extra transportation is needed, or when pooling operations are necessary, the group commander controls the assignment of transportation to the subordinate units.
- (3) *Allocation of supplies and equipment.* Group commanders, acting through their respective S4's, control the allocation of supplies and equipment to their units. Certain types of equipment may also be pooled and temporarily assigned to a unit in greater need of it than the unit to which it normally belongs.

284. Communications

a. Group headquarters must insure that communications are established with subordinate units and can expect that higher headquarters will establish communications with them. Since personnel and equipment are not available to lay and maintain long lines, communications are usually established by laying lines to the nearest unit that is tied in a net that will provide the required communications. Figure 20 shows a typical wire communications system of a chemical group (field army).

b. When the procedure outlined above is not feasible, it will be necessary for the units concerned to request help from higher

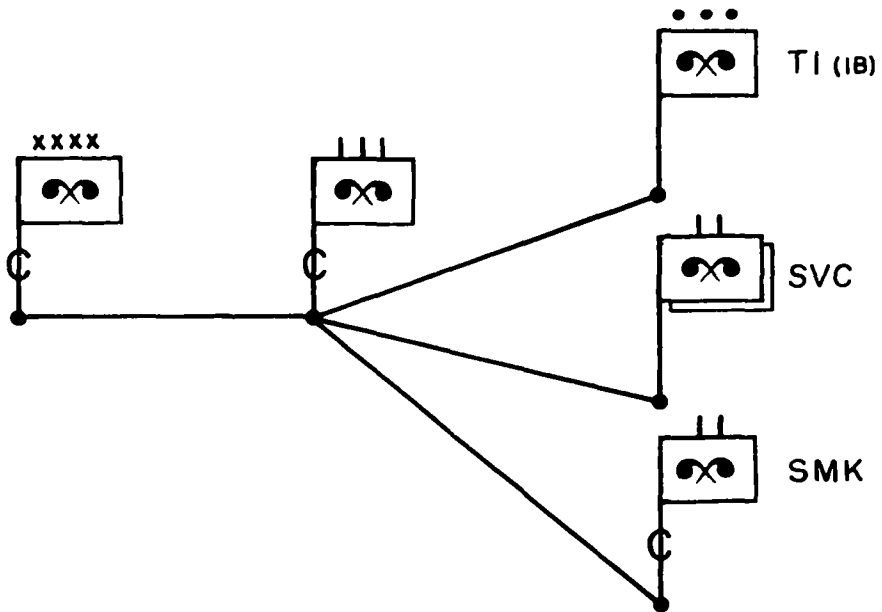


Figure 20. Typical wire communications system of a chemical group (field army).

headquarters in the form of personnel and equipment to lay the required lines.

285. Records and Reports

Records and reports that may be used in the chemical group command post include message center log, journal, situation maps and overlays, unit report, staff section reports, work sheets and data sheets, and command report. Guidance for the preparation of the records and reports is given in FM 101-5.

286. Checklist for SOP of Chemical Group

The following checklist is furnished as a guide in the preparation of an SOP for a chemical group.

- a. General.
 - (1) Purpose.
 - (2) Unit procedure.
- b. Organization.
 - (1) Marches and bivouacs.
 - (a) Reconnaissance party.
 - (b) Quarters party.
 - (2) Duties of subordinate unit quarters party.
- c. Personnel.
 - (1) Strength, records, and reports.
 - (2) Replacements.

- (3) Prisoners of war.
- (4) Morale and personnel services.
- (5) Civil affairs.
- (6) Procedures.
- (7) Interior management.
- (8) Civilian employees.
- (9) Burial and graves registration.

d. Intelligence.

- (1) Combat intelligence.
- (2) Counterintelligence.
- (3) Tactical propaganda.
- (4) Escape and evasion.

e. Operations.

- (1) Security.
- (2) Movement.
- (3) Smoke.

f. Logistics.

- (1) Supply.
 - (a) Class I.
 - (b) Class II and IV.
 - (c) Class III.
 - (d) Class V.
- (2) Evacuation.
 - (a) Personnel.
 - (b) Materiel.
- (3) Transportation.
- (4) Service (maintenance, decontamination, and clothing impregnation) installations.
- (5) Safety.
- (6) Miscellaneous.

g. Command.

- (1) Command posts.
- (2) Liaison officers.
- (3) Signal communications.
- (4) Orders.

CHAPTER 11

HEADQUARTERS AND HEADQUARTERS DETACHMENT, CHEMICAL BATTALION, SERVICE, ARMY OR COMMUNICATIONS ZONE

Section I. GENERAL

287. Mission

The mission of the headquarters and headquarters detachment, chemical battalion, service, army or communications zone (TOE 3-36), is to provide command, technical, and operational supervision for Chemical Corps units.

288. Assignment

The headquarters and headquarters detachment is assigned to a field army, independent corps, or communications zone on the basis of one headquarters and headquarters detachment per three to seven companies. It may be attached to a logistical command headquarters.

289. Capabilities

a. At full strength, the unit is capable of providing command, control, staff planning, and administration for attached units consisting of three to seven companies.

b. The unit is not adaptable for organization as a type B unit.

c. The unit is attached to or is dependent upon other units for messing facilities.

d. Individuals can fight as infantrymen when required. The unit is capable of defending itself and its installations against hostile ground attack.

e. The unit has a mobility of 60 percent.

290. Coordination With Other Units

a. *Chemical Corps Units.* It is the responsibility of the chemical service battalion commanders to coordinate the activities of the chemical troop units assigned and attached to them and to maintain effective liaison with adjacent chemical troop units. The supply, maintenance, and other support functions of the chemical troop units, whether located in the communications zone or in the army service area, are so closely interwoven that close and harmonious coordination must be achieved in order to insure an efficient service support team.

b. Command Echelons. The service battalion commander, in coordination with the chemical group commander, and the army chemical officer or logistical command chemical officer will plan chemical supply and service support. The service battalion commander will coordinate his activities with the group commander, logistical command chemical officer, or army chemical officer, as appropriate for the type of attachment or assignment. Liaison officers from battalion headquarters will aid in coordinating the activities of their units with the requirements of the supported forces.

c. Other Military Units. Basic principles and regulations governing the relations of the service battalion headquarters with other field army units are contained in FM 100-10.

d. Civilian Agencies. In the event of a major disaster in which any aspect of CBR or nuclear warfare is employed, the commander of the chemical battalion may be directed to aid the civilian disaster relief authorities in coordination with G5 or with the director of civil affairs.

e. Allied Military Units. Any collaboration with allied military units and the extent of the collaboration will be specified by higher headquarters.

Section II. ORGANIZATION AND FUNCTIONS

291. Organization

The headquarters and headquarters detachment, chemical battalion, service, army or communications zone (fig. 21), is composed of a battalion headquarters and a headquarters detachment.

292. Functions

a. In Army Service Area. The chemical service battalion headquarters coordinates, supervises, and provides administration for chemical troop units assigned or attached to it. It carries out chemical supply and service operations in support of troops as directed by higher headquarters. It has a capability for support of approximately one corps. It normally operates under the control of a chemical group; however, if no group is available, it is controlled by army headquarters.

b. In Communications Zone. In the communications zone, the service battalion will normally be attached to the chemical group. The service battalion may perform essentially the same functions as a chemical group except for maintaining a stock control system. The number of chemical troop units to be controlled will largely determine the number and type of administrative and headquarters units to be assigned.

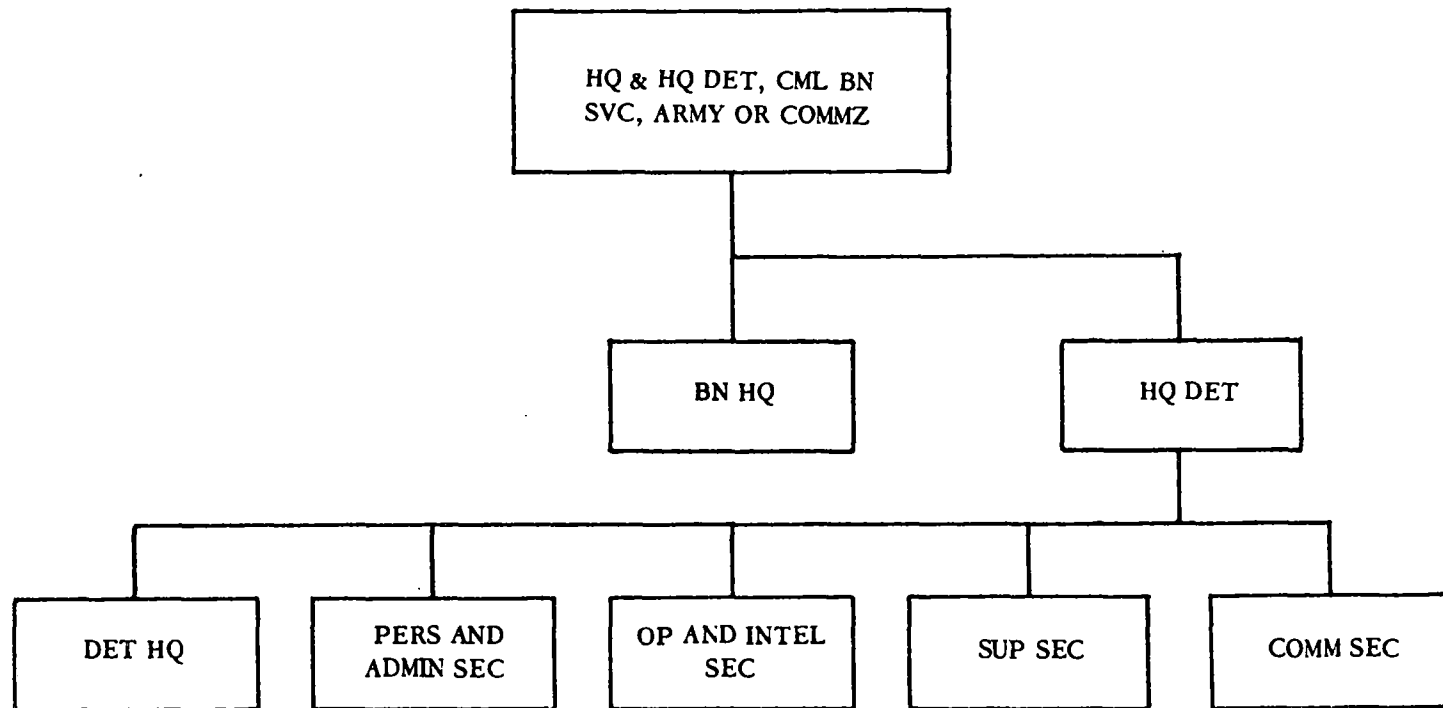


Figure 21. Organization of headquarters and headquarters detachment, chemical battalion, service, army or communications zone.

293. Battalion Headquarters

a. Organization. The composition of battalion headquarters is shown in TOE 3-36.

b. Functions. Functions of battalion headquarters include command responsibilities and overall administration, supervision, and staff planning of the operations, training, and supply of the chemical units assigned or attached to the battalion.

294. Headquarters Detachment

a. Organization. The headquarters detachment (fig. 21) is composed of detachment headquarters and four sections. The sections are personnel and administrative, operations and intelligence, supply, and communications. The composition of the detachment headquarters and of the four sections is shown in TOE 3-36.

b. Functions. Functions of detachment headquarters and of the four sections are given below:

- (1) *Detachment headquarters.* Functions of detachment headquarters include handling the supply and administrative services of the headquarters detachment and assisting in the operation of battalion headquarters, mess, motor maintenance, and personnel administration.
- (2) *Personnel and administrative section.* Functions of this section include the maintenance of the personnel and administrative records of battalion headquarters and headquarters detachment.
- (3) *Operations and intelligence section.* Functions of this section include administrative and technical duties necessary in training, organization, operations, troop information and education, and intelligence activities of the headquarters.
- (4) *Supply section.* Functions of this section include maintaining records and performing administrative details of the battalion headquarters S4.
- (5) *Communications section.* Functions of this section include the installation, maintenance, and operation of the telephone equipment of the battalion.

Section III. DUTIES AND RESPONSIBILITIES OF BATTALION COMMANDER, STAFF, AND KEY PERSONNEL

295. General

a. The duties and responsibilities of the chemical group's commander, staff, and key personnel (pars. 252-269) are applicable to the corresponding positions in the chemical service battalion.

b. Discussed in this section are the duties and responsibilities of key personnel positions that are authorized for the chemical service battalion but not for the chemical group.

c. For information about the duties and responsibilities of other personnel of the battalion headquarters and headquarters detachment, whose MOS numbers are listed in the unit's TOE, see SR 605-105-5 and AR 611-201.

296. Personnel Officer

The personnel officer is charged with preparation, maintenance, and safekeeping of all records, documents, correspondence, and statistics of a personnel and administrative nature that are not required to be kept at the headquarters of a subordinate command. He may perform the following specific duties:

a. Administer unit personnel records (of which he is custodian), except basic company records, which are retained by company commanders.

b. Furnish the disbursing officer with military pay orders.

c. Assist unit commanders and relieve them, insofar as possible, of the preparation of rosters and lists required by higher headquarters.

d. Based on records maintained under his supervision, advise and assist unit commanders in the assignment and classification of personnel.

e. Train personnel to replace clerks operating with group or battalion staff.

297. Assistant Supply Officer (Assistant S4)

The assistant supply officer (assistant S4) supervises the operations of the supply section of battalion headquarters. In performing the additional duty of motor officer, he supervises the operation of the battalion motor pool. He may perform the following specific duties:

a. Establish a program for motor vehicle operation, maintenance, and inspection.

b. Conduct periodic technical inspections of vehicles and driver efficiency.

c. Supervise repair operations and such unit replacements authorized or required to meet special conditions.

d. Coordinate and consolidate requests for depot maintenance repairs.

e. Keep the unit commander informed of the status of operation and maintenance of vehicles in the command, assist the commander in making command inspections, and supervise vehicular operations.

Section IV. EQUIPMENT

298. General

A detailed list of organizational equipment of the battalion headquarters and headquarters detachment is given in TOE 3-36.

299. Communications Equipment

The headquarters and headquarters detachment is authorized five telephones and one telephone switchboard. Two telephones are assigned to detachment headquarters and one each to the personnel and administrative section, operations and intelligence section, and supply section. The switchboard that is assigned to the communications section enables the battalion to provide lines to subordinate units and to tie into trunk facilities of higher headquarters.

300. Transportation Equipment

The organic motor vehicles of the headquarters and headquarters detachment, chemical battalion, service, army or communications zone, are not capable of moving the personnel and equipment of the unit at one time. The unit may be moved by shuttling its organic vehicles or by using additional, nonorganic vehicles. Information is given in FM 3-8 about the requirements for additional motor vehicles for movement of the unit at one time.

301. Other Equipment

Necessary items are provided for organizational maintenance and other normal functions of the unit. Since some operations may require the headquarters to operate separate forward and rear echelons, sufficient tentage and mess equipment are authorized to allow this type of operation.

Section V. TRAINING

302. General

The ultimate purpose of the unit training is to provide a technically proficient team capable of providing the headquarters with the proper support in accomplishing its mission. It is important that headquarters personnel be especially well trained in their primary and secondary duties, since their supervisory and record keeping duties affect the entire command. Regardless of his primary assignment, every soldier must be taught that he is obligated to fight in defense of his unit or area.

a. Planning. Planning must be continual. The battalion S3 section prepares plans. During the cadre training period, the unit

training program and training schedules are prepared; lesson plans and training tests are written; training aids, equipment, and ammunition are obtained; and instructors are selected and qualified.

b. Unit Training Program. The unit training program is prepared in accordance with the army training program for the detachment.

303. Supervision

a. The detachment commander and his section leaders must actively and personally supervise the training process in order to insure quality and thoroughness in training. Instruction must be observed continually in order to determine how well and how completely training directives are being carried out. Observations should be followed by constructive criticism designed to achieve and maintain a high standard of instruction.

b. The battalion S3 section is responsible for generally supervising battalion training activities, maintaining training records, and keeping the units of the command informed regarding availability of training aids. The section leaders of the headquarters detachment will work closely with the battalion operations sergeant on all training problems.

Section VI. OPERATIONS

304. Location of Battalion Headquarters

a. Army Service Area. The chemical service battalion that is assigned to the army service area will normally be centrally located with respect to its assigned or attached chemical troop units. The other chemical service battalions will normally be located along the main supply route of the corps that they are supporting. Local reconnaissance by unit commanders is of primary importance in locating unit areas. The tactical situation, mission, terrain, available buildings, weather, rail and road nets, communications facilities, transportation, and the probability of enemy use of CBR or nuclear warfare will be taken into consideration in selecting the best location for these units.

b. Communications Zone. In the communications zone, the service battalion will normally be attached to a logistical command. The general location of chemical service battalion headquarters will be determined by the directorate staff of the logistical command. The area assigned should be accessible to all supported units and near the office of the logistical command chemical officer. The exact location will be chosen after local reconnaissance by unit commanders.

305. Command Post Location and Displacement

a. A general location for the command post will usually be designated by army, communications zone, or logistical command headquarters. The service battalion commander will prescribe the exact location of his command post and the general location of his subordinate units. Subordinate units must be located first so that the command post can be located in a site that will facilitate control of the units. Recommendations for the location of the command post are made by the S3 following consultations with the communications officer and the S1 to determine possible locations from the standpoint of communications and quarters. A ground reconnaissance is made to determine the actual site.

b. When a displacement of the command post is planned, the S3, after consultation with higher headquarters, confers with the S1 and the communications officer and recommends the location. Normally, after the actual site has been selected by reconnaissance, the S1 goes to the new location accompanied by guides, the communications officer, and the necessary communications personnel to install communications facilities. The command post is then displaced, usually in two echelons to avoid loss of control and operational time during the displacement.

306. Site Selection Factors

a. *Mission.* With respect to the mission of the unit, the battalion headquarters must consider the distance to higher headquarters, the location of subordinate units, the axis of communications and transportation, the disposition of the troops supported by the battalion's subordinate units, and the disposition of other service support units.

b. *Survey of Area.* Survey of the area is conducted to determine the extent and degree of contamination resulting from prior CBR attacks, and standard CBR markers (FM 21-40) are placed to indicate area of hazard.

c. *Cover and Concealment.* Natural cover and concealment are used so far as possible to conceal the command post and its troop bivouac and motor pool area. Camouflage and the use of dummy installations are also measures to be considered.

d. *Existing Buildings.* Whenever the situation permits, it is a good practice to make use of existing buildings. During operations with an army or corps, the headquarters will usually bivouac in the open, utilizing terrain to the maximum advantage. In the communications zone, or in a static situation, facilities and space may be located in towns or villages. Factors for consideration in the selection of local buildings include traffic congestion, proxim-

ity to areas likely to be bombed, billeting availability, and water supply.

e. Terrain. The headquarters area should be located on firm, well-drained ground, sufficiently flat to allow setting up tents, and with as much natural cover and concealment as possible.

307. Arrangement of Site

a. General. Once the site of the command post has been selected, the S1 (in coordination with the communications officer) determines the interior arrangement of headquarters. He designates the space and area to be occupied by the commander and each staff section, and he coordinates the location of other activities.

b. Headquarters Area. The message center should be located near the main entrance to headquarters. The unit supply and the bivouac area should be conveniently located near headquarters. In general, the areas and activities of the headquarters area will be dispersed enough for comfortable operation yet not too far apart for efficient operation. The need for long walks or truck movement of personnel between these areas should be avoided.

c. Motor Pool. The motor pool should be located near the headquarters area in a firm, well-drained location. The location should be concealed, accessible to vehicles, and placed so that its possible detection from the air will not disclose the location of the command post proper.

d. Signal Facilities. The switchboard is installed near incoming wire circuits. The switchboard location should be free from noise and interference.

308. Preliminary Work at Site

a. Security consistent with the location of the unit and the tactical situation will be provided. If the site selected is in an area recently occupied by enemy forces, the advance party will inspect it for boobytraps and test it for contamination.

b. Roads and paths are laid out and marked with signs and tape. All available concealment is used in selecting routes.

c. Markers are placed to indicate the position of headquarters, the motor pool, and other installations.

d. Guides will be selected from the reconnaissance party to aid the convoy in locating the area.

e. Movement schedules are prepared by the headquarters and administrative unit S3's in order to control the movement of individual units. Individual unit schedules will then be prepared designating priority of movement (if unit is to be moved in two echelons) and giving all the necessary data for accomplishing a smooth and orderly movement.

309. Technical Operations Control

a. Measures for Direct Control of Units.

- (1) *Disposition.* Commanders of headquarters and administrative units control the disposition of units assigned or attached to their command. For example, chemical service battalion commanders determine appropriate location and assignment of companies assigned or attached to their commands, subject to orders from higher headquarters and limitations imposed by TOE composition.
- (2) *Responsibility for operations.* Since battalion commanders are responsible for the operations of their subordinate units, they can exercise control over these units by approval or disapproval of operational plans submitted by these units. Standing operating procedures and operations directives prepared by the battalion S3 section are also instruments for the direct control of subordinate units.
- (3) *Recommendations to higher headquarters.* Battalion commanders hold conferences with higher headquarters staff chemical officers where the commanders can submit recommendations as to the employment of their subordinate units. Another means of controlling units through recommendations is the command report submitted by battalion headquarters.

b. *Measures for Indirect Control of Units.* Among the many indirect measures that a commander may use to affect control of his subordinate units are the following:

- (1) *Assignment of personnel.* Battalion headquarters personnel sections assign replacements to their subordinate units. The battalion commanders, therefore, decide which units need extra personnel, which must be understrength (if this becomes necessary), and which units will get any specific individual or individuals.
- (2) *Assignment of transportation.* When extra transportation is needed, or when pooling operations are necessary, battalion commanders control the assignment of transportation to the subordinate units.
- (3) *Allocation of supplies and equipment.* Battalion commanders, acting through their respective S4's, control the allocation of supplies and equipment to their units. Certain types of equipment may be pooled and temporarily assigned to a unit in greater need of it than the unit to which it normally belongs.

310. Communications

a. Battalion headquarters must insure that communications are established with subordinate units and can expect that higher headquarters will establish communications with them. Since personnel and equipment are not available to lay and maintain long lines, communications are usually established by laying lines to the nearest unit that is tied in a net that will provide the required communications. Figure 22 shows a typical wire communications system of a chemical service battalion.

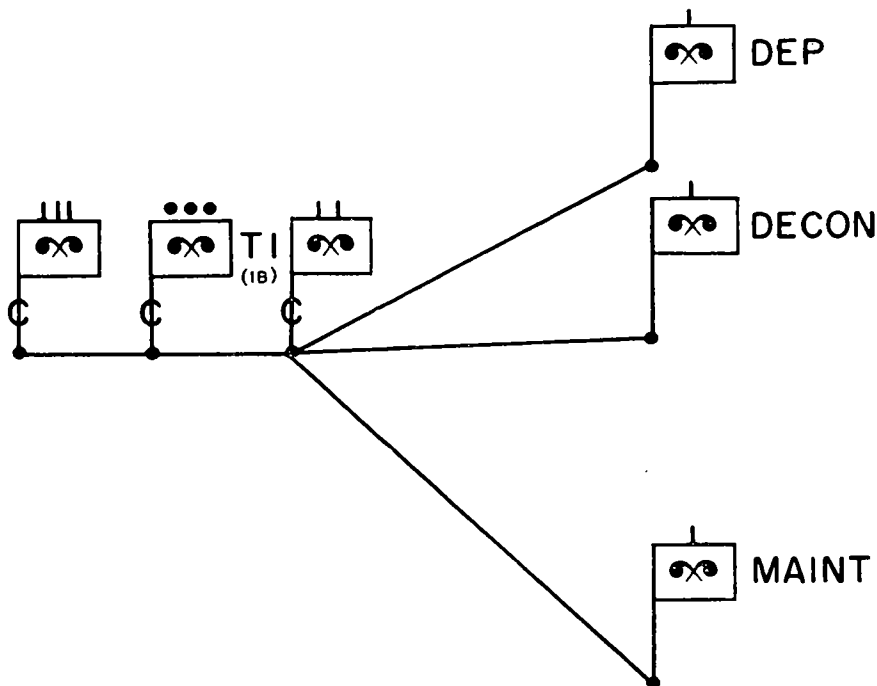


Figure 22. Typical wire communications system of a chemical service battalion (army).

b. When the procedure outlined above is not feasible, it will be necessary for the units concerned to request help from higher headquarters in the form of personnel and equipment to lay the required lines.

311. Records and Reports

Records and reports used in the chemical service battalion command post generally are the same as those used in the chemical group command post (par. 285).

312. Checklist for SOP For Chemical Service Battalion

The checklist for an SOP for the chemical group (par. 286) may be used as a guide for the preparation of an SOP for the chemical service battalion.

APPENDIX

REFERENCES

AR 40-580	Control of Hazards to Health from Radioactive Materials
AR 55-series	Transportation and Travel
AR 59-series	Air Transportation
AR 220-series	Field Organizations
AR 320-5	Dictionary of United States Army Terms
AR 335-series	Reports
AR 345-series	Records
AR 380-5	Safeguarding Defense Information
AR 385-series	Safety
AR 600-series	Personnel—General
AR 605-series	Officers
AR 611-series	Personnel Selection and Classification
AR 612-series	Personnel Processing
AR 614-series	Assignments, Details, and Transfers
AR 615-series	Enlisted Personnel
AR 616-series	Personnel Utilization
AR 701-series	Logistics Responsibilities
AR 711-16	Installation Stock Control and Supply Procedures
AR 730-30	Supply Support of Oversea Organization and Field Maintenance
AR 735-11	Accounting for Lost, Damaged and Destroyed Property
AR 735-35	Property Accountability—Supply Procedures for TOE Units, Organizations, and Non-TOE Activities
AR 742-series	Inspection of Supplies and Equipment
AR 743-41	Shed and Open Storage of Supplies
AR 750-series	Maintenance of Supplies and Equipment
AR 750-4	Major Overhaul Policy and Program for Oversea Commands
AR 755-380	Disposal of Radioactive Material
SR 780-40-1	Stock Control and Supply Procedures
FM 3-5	Tactics and Techniques of Chemical, Biological and Radiological (CBR) Warfare
FM 3-8	Chemical Corps Reference Handbook
FM 3-9	Staff Chemical Officer
FM 3-50	Chemical Smoke Generator Battalion and Chemical Smoke Generator Company

(C) FM 3-130	U. S. Army Chemical, Biological and Radiological (CBR) Intelligence (U)
FM 5-20	Camouflage, Basic Principles and Field Camouflage
FM 5-21	Camouflage of Fixed Installations
FM 5-31	Use and Installation of Boobytraps
FM 7-10	Rifle Company, Infantry and Airborne Division Battle Groups
FM 9-1	Ordnance Service in the Field
FM 9-6	Ordnance Ammunition Service in the Field
FM 9-10	Ordnance Maintenance and General Supply in the Field
FM 10-10	Quartermaster Service in Theater of Operations
FM 10-16	Quartermaster Laundry Company
FM 11-22	Signal Operations in the Corps and Army
FM 21-5	Military Training
FM 21-6	Techniques of Military Instruction
FM 21-10	Military Sanitation
FM 21-11	First Aid for Soldiers
FM 21-30	Military Symbols
FM 21-40	Small Unit Procedures in Atomic, Biological, and Chemical Warfare
FM 21-41	Soldier's Handbook for Nuclear, Biological, and Chemical Warfare
FM 21-48	CBR Training Exercises
FM 21-75	Combat Training of the Individual Soldier and Patrolling
FM 22-100	Military Leadership
FM 25-10	Motor Transportation, Operations
FM 27-10	The Law of Land Warfare
FM 30-5	Combat Intelligence
FM 30-7	Combat Intelligence—Battle Group, Combat Command, and Smaller Units
(C) FM 30-16	Technical Intelligence (U)
FM 31-15	Operations Against Airborne Attack, Guerrilla Action, and Infiltration
FM 38-5	Army Maintenance Management
FM 54-1	The Logistical Command
FM 100-5	Field Service Regulations; Operations
FM 100-10	Field Service Regulations; Administration
FM 101-1	Staff Officers' Field Manual—The GI Manual
FM 101-5	Staff Officers' Field Manual; Staff Organization and Procedure
FM 101-10	Staff Officers' Field Manual: Organization, Technical, and Logistical Data—Part I, Unclassified Data

(S) FM 101-10	Staff Officers' Field Manual: Organization, Technical, and Logistical Data—Part III, Classified Data (U)
TM 3-200	Capabilities and Employment of Toxic Chemicals
TM 3-220	Decontamination
TM 3-223	Decontaminating Apparatus, Power-Driven, Truck-Mounted, M3A2
TM 3-228	Heater, Water, Oil, M1
TM 3-250	Storage, Shipment, and Handling of Chemical Agents and Hazardous Chemicals
TM 3-255	Chemical Filling and Handling Equipment
TM 3-281	Impregnating Plant, Clothing, M2
TM 3-300	Ground Chemical Munitions
TM 3-303	Impregnating Set, Clothing, Field, M3; Impregnating Outfit, Clothing, Field, M1; Kit, Testing, Impregnate-in-Clothing, M1
TM 3-304	Protective Clothing and Accessories
TM 3-306	Detector Kits, Chemical Agent, M18, M9A2, and M15
TM 3-313	Preventive Maintenance of Chemical Corps Equipment
TM 3-366	Flamethrower and Fire Bomb Fuels
TM 3-376	M2A1 Portable Flame Thrower
TM 3-378	Compressor, Reciprocating, Power Driven, 7 cfm, M1A1
TM 3-407	Decontaminating Apparatus, Power Driven, Truck Mounted, M3A3
TM 3-409	Impregnating Plant, Clothing, M2A1
TM 3-411	Kit, Fuel Filling, Flame Thrower, M10A1
TM 3-522-15	Mask, Protective, Field, M9 and Mask, Protective, Field, M9A1
TM 3-1040-200-12	Flamethrower, Portable, One-Shot, M8
TM 9-1900	Ammunition, General
TM 10-260	Quartermaster Salvage in the Theater of Operations
TM 10-354	Quartermaster Fixed Laundry Organization, Operation, Procedures, and Equipment Maintenance
TM 10-1619	Quartermaster Materials Handling Equipment
TM 19-500	Enemy Prisoners of War
TM 38-230	Preservation, Packaging, and Packing of Military Supplies and Equipment
TM 57-210	Air-Movement of Troops and Equipment
TM 743-200	Storage and Materials Handling
SB 3-28	Wartime Replacement Factors and Consumption Rates, Chemical Corps

SB 3-30	Serviceability Standards for Chemical Corps Materiel
SB 3-33	Chemical Corps Adopted Items of Materiel
SB 3-34	Maintenance Float, Chemical Corps Equipment
SB 3-38	Cannibalization as a Source of Low Mortality Repair Parts
SB 9-4	Processing of Unboxed Self-Propelled and Towed Class II Ordnance General Supplies and Related Materiel for Shipment and Storage
(C) SB 38-26	Ammunition Day of Supply (U)
SB 708-401	Federal Supply Classification; Part I, Groups and Classes
SB 708-402	Federal Supply Classification; Part II, Numeric Index of Classes
SB 708-403	Federal Supply Classification, Part III, Alphabetic Index
TA 3-104	Allowances of Chemical Corps Expendable Supplies
TA 20-2	Equipment for Training Purposes
TA 23-100	Ammunition for Training
TOE 3-7D	Chemical Company, Combat Support
TOE 3-32	Headquarters and Headquarters Detachment, Chemical Group
TOE 3-36	Headquarters and Headquarters Detachment, Chemical Battalion, Service, Army or Communications Zone
TOE 3-47	Chemical Maintenance Company
TOE 3-67D	Chemical Depot Company
TOE 3-77E	Chemical Processing Company
TOE 3-97	Chemical Laboratory
TOE 3-117	Chemical Depot Company, Communications Zone
TOE 3-217	Chemical Decontamination Company
TOE 3-500D	Chemical Service Organization
TOE 29-500D	Composite Service Organization
ATP 3-7	Chemical Company, Combat Support
ATP 3-32	Headquarters and Headquarters Detachment, Chemical Group
ATP 3-47	Chemical Maintenance Company
ATP 3-67	Chemical Depot Company (CommZ)
ATP 3-77	Chemical Processing Company
ATP 3-97	Chemical Laboratory
ATP 3-204	Chemical Decontamination Company
ATP 3-206	Chemical Service Organization
ATP 3-308	Headquarters and Headquarters Detachment, Chemical Battalion, Army or Communications Zone

ATP 21-114	Basic Combat Training Program for Male Military Personnel Without Prior Service
ATT 3-1	Chemical Company, Decontamination
ATT 3-6	Headquarters and Headquarters Detachment, Chemical Battalion, Service or Communications Zone
ATT 3-7-1	Chemical Company, Combat Support
ATT 3-8	Chemical Company (Processing)
ATT 3-32	Headquarters and Headquarters Detachment, Chemical Group, Field Army or Communications Zone
ATT 3-47	Chemical Maintenance Company
ATT 3-67	Chemical Company (Depot) and Chemical Company (Depot) (Communications Zone)
ATT 3-97	Chemical Laboratory
ATT 3-500	Chemical Service Organization
DA Pam 20-21	The Army School Catalog
DA Pam 21-65	Officers' Call (The Company Officer and His Men)
DA Pam 27-1	Treaties Governing Land Warfare
DA Pam 39-1	Nuclear Weapons Employment
DA Pam 108-1	Index of Army Motion Pictures, Film Strips, Slides, and Phono-Recordings
DA Pam 310-1	Index of Administrative Publications
DA Pam 310-2	Index of Blank Forms
DA Pam 310-3	Index of Training Publications
DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders
DA Pam 310-5	Index of Graphic Training Aids and Devices
DA Pam 310-7	Index of Tables of Organization and Equipment, Tables of Organization, Type Tables of Distribution, and Tables of Allowances
DA Pam 310-21	Index of Supply Manuals: Signal Corps
DA Pam 310-23	Index of Supply Manuals: Chemical Corps
DA Pam 310-25	Index of Supply Manuals: Corps of Engineers
DA Pam 310-29	Index of Supply Manuals: Ordnance Corps
DA Pam 310-30	Index of Supply Manuals: Quartermaster Corps
DA Pam 600-2	The Armed Forces Officer
DA Pam 611-5	A Unit Commander's Guide to the Enlisted Classification System of the US Army
DA Pam 750-1	Preventive Maintenance Guide for Commanders
TC 101-1 (1958)	Prediction of Fallout and Radiological Monitoring and Survey
ASubjScd 3-series	
TF 3-1755	The Decontamination Company

INDEX

	Paragraph	Page
Adjutant (S1).....	254	125
Area damage control.....	20	10
Assignment:		
Chemical company, combat support.....	216	98
Chemical decontamination company.....	130	68
Chemical depot company, communications zone.....	41	22
Chemical depot company (field army).....	74	38
Chemical laboratory.....	188	89
Chemical maintenance company.....	93	44
Chemical processing company.....	162	82
Chemical technical intelligence detachment.....	237b	114
Headquarters and headquarters detachment, chemical bat- talion, service, army or communications zone.....	288	139
Headquarters and headquarters detachment, chemical group.....	244	120
Assistant operations and training officer (assistant S3).....	257	127
Assistant supply officer (assistant S4).....	297	143
Auxiliary labor.....	36-39	20
Capabilities:		
Chemical company, combat support.....	218	99
Chemical decontamination company.....	132	68
Chemical depot company, communications zone.....	43	22
Chemical depot company (field army).....	77	39
Chemical laboratory.....	190	89
Chemical maintenance company.....	94	44
Chemical processing company.....	164	82
Chemical service organization teams.....	242e	119
Headquarters and headquarters detachment, chemical bat- talion, service, army or communications zone.....	289	139
Headquarters and headquarters detachment, chemical group.....	245	120
Chaplain.....	261	128
Chemical cellular units.....	242	117
Chemical company, combat support:		
Assignment.....	216	98
Capabilities.....	218	99
Communications.....	230	111
Disposition.....	217	98
Equipment.....	222, 223	103
Limitations.....	219	100
Mission.....	215	98
Operations.....	226-229	104
Organization.....	220, 221	101
Training.....	224, 225	103
Chemical decontamination company:		
Assignment.....	130	68
Capabilities.....	132	68
Coordination with other units.....	133	68
Covered space requirements.....	160	81
Equipment.....	139, 140	72
Location.....	131	68
Mission.....	129	68

	Paragraph	Page
Operations.....	148-159	74
Organization.....	134	69
Supplies:		
Decontamination.....	155	79
Operational.....	141	73
Training.....	145-147	73
Chemical depot company, communications zone:		
Assignment.....	41	22
Capabilities.....	43	22
Equipment.....	49-52	25
Location.....	42	22
Mission.....	40	22
Operations.....	55-72	27
Organization.....	44	24
Training.....	53, 54	26, 27
Chemical depot company (field army):		
Assignment.....	74	38
Capabilities.....	77	39
Coordination with other units.....	76	38
Equipment.....	82-85	40
Location.....	75	38
Mission.....	73	38
Operations.....	87-91	41
Organization.....	78	39
Training.....	86	41
Chemical laboratory:		
Assignment.....	188	89
Capabilities.....	190	89
Communications.....	211	97
Coordination with other units.....	191	90
Covered space requirements.....	213	97
Equipment.....	203-205	94
Functions.....	193	91
Location.....	189	89
Mission.....	187	89
Operations.....	209, 210	96
Organization.....	192	90
Training.....	206-208	95
Chemical maintenance company:		
Assignment.....	93	44
Capabilities.....	94	44
Coordination with other units.....	95	44
Communications.....	126	67
Covered space requirements.....	128	67
Equipment.....	101, 102	49, 50
Functions.....	97	45
Mission.....	92	44
Operations.....	105-125	50
Organization.....	96	45
Training.....	103, 104	50
Transportation.....	127	67
Chemical maintenance officer.....	266	130

	Paragraph	Page
Chemical technical intelligence detachment:		
Assignment.....	237b(1)	114
Functions.....	237b(2)	115
Operations.....	237b(4)	115
Training.....	237b(3)	115
Commander:		
Battalion.....	295	142
Company.....	8	5
Group.....	252	123
Commissioned officers.....	7	4
Chemical service organization teams:		
AA, Platoon headquarters (component).....	233b	113
AB, Platoon headquarters (separate).....	233c	113
AC, Company headquarters.....	233d	114
EA, Supply.....	234	114
EB, Supply.....	234	114
EC, Supply.....	234	114
ED, Supply.....	234	114
FA, Maintenance.....	235	114
FB, Maintenance.....	235	114
FC, Maintenance.....	235	114
FD, Maintenance.....	235	114
HA, Decontamination.....	236	114
HB, Decontamination.....	236	114
HC, Decontamination.....	236	114
IA, Technical intelligence.....	237	114
IB, Technical intelligence.....	237	114
JA, Mobile laboratory.....	238	116
KA, Demolition and destruction.....	239a	116
KB, Escort crew.....	239b	116
KC, Safety.....	239c	116
LA, Radiological center.....	240	116
Chemical supply specialist.....	269	131
Chemical processing company:		
Assignment.....	162	82
Capabilities.....	164	82
Coordination with other units.....	165	82
Covered space requirements.....	179c	86
Equipment.....	172-175	84
Functions.....	167	83
Location.....	163	82
Mission.....	161	82
Operations.....	178-186	86
Organization.....	166	83
Training.....	176, 177	85
Chemical processing officer.....	267	130
Communications:		
Chemical company, combat support.....	230	111
Chemical laboratory.....	211	97
Chemical maintenance company.....	126	67
Headquarters and headquarters detachment, chemical bat- talion, service, army or communications zone.....	310	149
Headquarters and headquarters detachment, chemical group.....	284	136
Communications section chief.....	265	130

	Paragraph	Page
Covered space requirements:		
Chemical decontamination company	160	81
Chemical laboratory	213	97
Chemical maintenance company	128	67
Chemical processing company	179c	86
Destruction of equipment	24	12
Equipment:		
Chemical company, combat support	222, 223	103
Chemical decontamination company	139, 140	72
Chemical depot company, communications zone	49-52	25
Chemical depot company (field army)	82-85	40
Chemical laboratory	203-205	94
Chemical maintenance company	101, 102	49, 50
Chemical processing company	172-175	84
Destruction of	24	12
Headquarters and headquarters detachment, chemical bat- talion, service, army or communications zone	298-301	144
Headquarters and headquarters detachment, chemical group	270-273	131
Executive officer:		
Company	11	6
Group	253	124
First sergeant	12	6
Functions:		
Chemical laboratory	193	91
Chemical maintenance company	97	45
Chemical processing company	167	83
Chemical technical intelligence detachment	26	13
Common	18-39	7
Headquarters and headquarters detachment, chemical bat- talion, service, army or communications zone	292	140
Headquarters and headquarters detachment, chemical group	248	121
Headquarters and headquarters detachment, chemical battalion, service, army or communications zone:		
Assignment	288	139
Capabilities	289	139
Communications	310	149
Coordination with other units	290	139
Equipment	298-301	144
Functions	292	140
Mission	287	139
Operations	304-309	145
Organization	291	140
Records and reports	311	149
Training	302, 303	144, 145
Headquarters and headquarters detachment, chemical group:		
Assignment	244	120
Capabilities	245	120
Communications	284	136
Coordination with other units	246	120
Equipment	270-273	131
Functions	248	121
Mission	243	120

	Paragraph	Page
Operations	278-283	133
Organization	247	121
Records and reports	285	137
Training	274-277	132
Intelligence officer (S2)	255	125
Intelligence, CBR	26	13
Location:		
Chemical decontamination company	131	68
Chemical depot company, communications zone	42	22
Chemical depot company (field army)	75	38
Chemical laboratory	189	89
Chemical processing company	163	82
Maintenance:		
Depot	109b	53
Field	109a	52
Inspections	29	17
Organizational	28	15
Publications	32	18
Record forms	33	18
Mess steward	14	7
Mission:		
Chemical company, combat support	215	98
Chemical decontamination company	129	68
Chemical depot company, communications zone	40	22
Chemical depot company (field army)	73	38
Chemical laboratory	187	89
Chemical maintenance company	92	44
Chemical processing company	161	82
Headquarters and headquarters detachment, chemical bat- talion, service, army or communications zone	287	139
Headquarters and headquarters detachment, chemical group	243	120
Mobility	5	4
Motor maintenance sergeant	15	7
Movement:		
Air	34d	19
Motor	34b	18
Oversea	34i	20
Rail	34c	19
Water	34e	19
Noncommissioned officers	10	5
Operations:		
Chemical company, combat support	226-229	104
Chemical decontamination company	148-159	74
Chemical depot company, communications zone	55-72	27
Chemical depot company (field army)	87-91	41
Chemical laboratory	209, 210	96
Chemical maintenance company	105-125	50
Chemical processing company	178-186	86
Chemical technical intelligence detachment	237b(4)	115
Headquarters and headquarters detachment, chemical bat- talion, service, army or communications zone	304-309	145
Headquarters and headquarters detachment, chemical group	278-283	133

	Paragraph	Page
Operations and training officer (S3).....	256	126
Operations sergeant.....	264	130
Organization:		
Chemical cellular units.....	242 <i>b</i>	117
Chemical company, combat support.....	220, 221	101
Chemical decontamination company.....	134	69
Chemical depot company, communications zone.....	44	24
Chemical depot company (field army).....	78	39
Chemical laboratory.....	192	90
Chemical maintenance company.....	96	45
Chemical processing company.....	166	83
Headquarters and headquarters detachment, chemical bat- talion, service, army or communications zone.....	291	140
Headquarters and headquarters detachment, chemical group.....	247	121
Organization, types.....	4	3
Personnel:		
Management.....	18	7
Officer.....	296	143
Sergeant.....	263	129
Platoon:		
Leader.....	9	5
Sergeant.....	16	7
Rear area security.....	20	10
Safety.....	25	12
Salvage.....	27 <i>g</i>	15
Section heads.....	17	7
Security:		
Classified documents.....	23	11
March and movement.....	22	11
Rear area.....	20 <i>a</i>	10
Sergeant major.....	262	128
Stock control officer.....	268	131
Supply officer (S4).....	258	127
Supply, unit.....	27	13
Teams:		
Chemical service organization.....	232-241	113
Mobile maintenance.....	100 <i>d</i>	49
Training:		
Chemical company, combat support.....	224, 225	103
Chemical decontamination company.....	145-147	73
Chemical depot company, communications zone.....	53, 54	28, 27
Chemical depot company (field army).....	86	41
Chemical laboratory.....	206-208	95
Chemical maintenance company.....	103, 104	50
Chemical processing company.....	176, 177	85
Chemical technical intelligence detachment.....	237 <i>b</i> (3)	115
Headquarters and headquarters detachment, chemical bat- talion, service, army or communications zone.....	302, 303	144, 145
Headquarters and headquarters detachment, chemical group.....	274-277	132
Unit.....	19	8
Troop safety.....	21	11
Types of organization.....	4	3

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For explanation of abbreviations used, see AR 320-50.

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